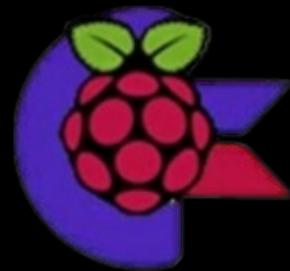
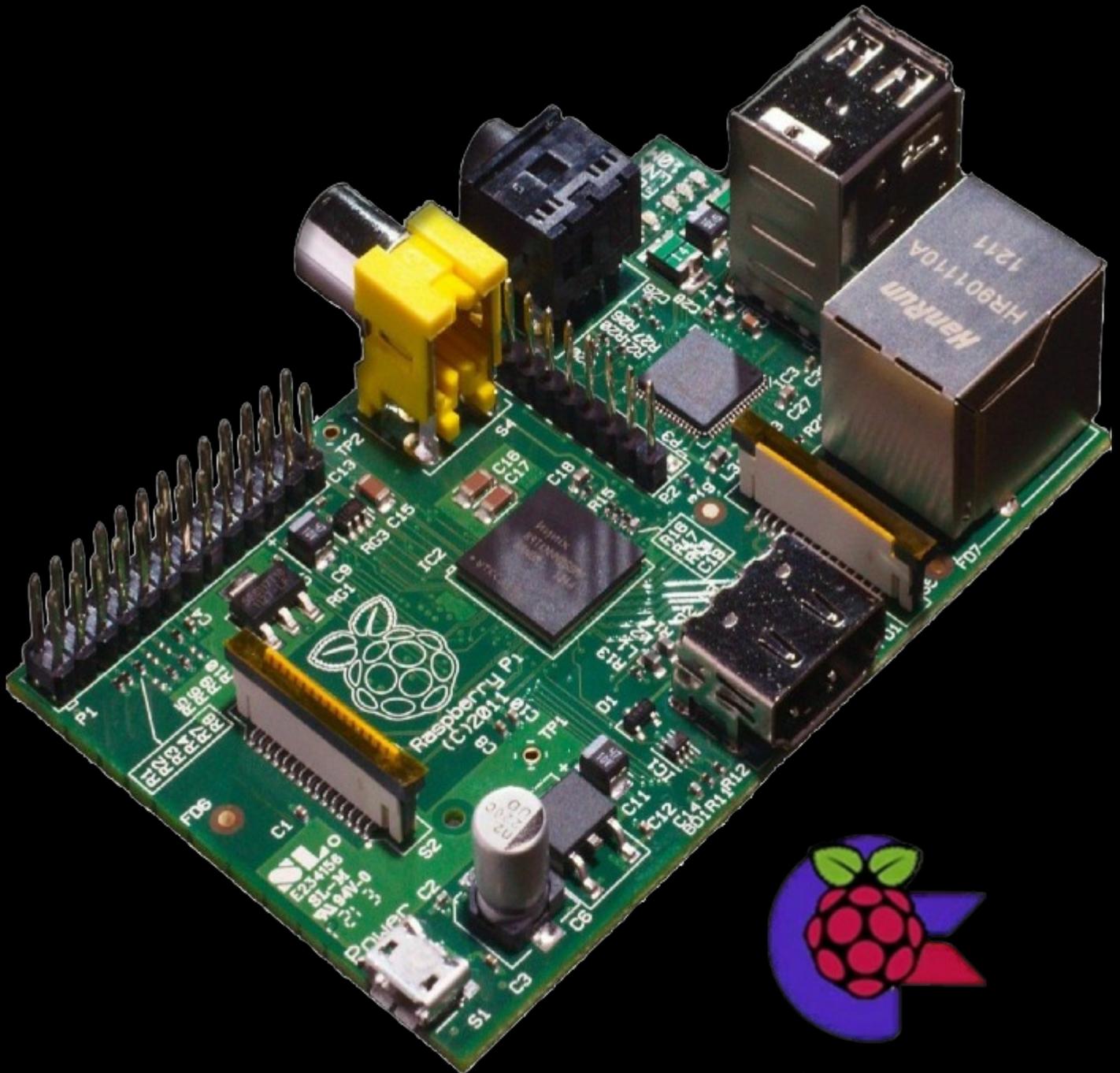


COMMODORE FREE

A free to download Magazine dedicated to Commodore computers.

Issue 75



Commodore Pi

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"THE...SYSTEM...IS...DOWN"
A story by Commodore Free **Page 30**



Editorial

Right then I suppose some of you keen eyed readers will have noticed that deadlines have slipped and schedules haven't been made. Let me just say this, it may or may not happen again depending on how much free time I do or don't have.

PI AND COMMODORE

Anyway let's read about what we have for you in this issue well an interview with Scott Hunter the creator of the Commodore PI. This software turns the Raspberry Pi hardware into a Commodore 64 computer, although the project is quite new you can read how Scott has progressed and if you are so inclined find out how you can help Scott with the project.

TAPED

Yes the cover tape is still here although it's still Commodore 64 Related (common guys where are the Vic, C16 and Pet entries for this feature) the cover tape has a number of special treats and Richard will introduce them at the start of the feature which is good for me as it means I have top type a lot less in the editorial feature about them!

JIM BUTTERFIELD

I also have some reading noted found on a disk I was trying to image for someone in America, the notes seem to be a reading guide for Jim, It actually credited them as both Jim and Robert Bernado, but after speaking with Robert he said he knew nothing about them, so I didn't know who to contact with regard to printing the article as I thought it was good for others to read I published it anyway. Sadly as you are aware Jim has passed away, but he would have been very high on my "must meet" peoples list. I am not relay into these celebrities who are famous for being famous sake but Jim when I saw interviews with him seemed very down to earth and didn't seem to bother about repeating the same information over and over again to eager interviewers.

NEWS

Yes the news is still here and divided up again into machine type, as so many people commented on this way of reporting news so I kept it as you seem to like it so much better than the old way
That's me out for another issue

A number of people have contacted me with articles and some special items for Commodore free, as at the moment this is all vapour ware I don't want to build up your hopes as people have contacted me before and said they would write and then seem to go very quiet, but I think these guys are genuine anyway more news when I have something confirmed.

STORY TIME

We finish this issue with a short story based around the Commodore 64 written by yours truly, let me know what you think as it's my first real writing effort since school,

wonder what my English teacher would have marked me for the effort and I wonder if he would have still placed the words

"could do better" at the end like he used to on all my work!

Well.....

Thanks for reading

Nigel

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www.commodorefree.com

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Submissions

Articles are always wanted for the magazine. Contact us for details. We can't pay you for your efforts but you are safe in the knowledge that you have passed on details that will interest other Commodore enthusiasts.

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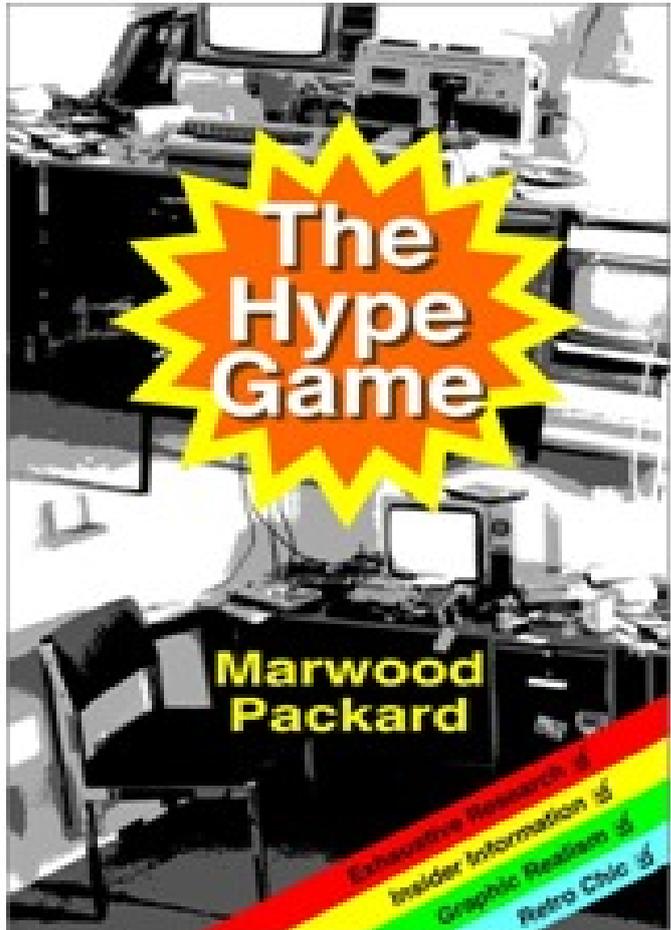




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Commodore Free E-Cover Tape #8

By Richard Bayliss

FEAST YOUR EYES ON THESE BEAUTIES:

4 AWESOME GAMES

Including the stunning SUB HUNTER!

Plus a 4 DEMO EXTRAVAGANZA

Last issue, we struck back with some nice surprises. This issue it gets even BIGGER. As we have gone totally MAD. Yes, that's right. Probably one of our biggest E-Cover Tapes of all time so far. Plus SUB HUNTER celebrates its 5th anniversary this month, and guess what? It is also on this issue's E-Cover Tape. In its original 2008 form.

Also included on this issue's cover tape is something extra special. I have been given kind permission from Skull / Samar to add Bomberman C64 on to this issue's E-Cover tape. We were going to add the playable demo of Bomberman on to the tape, but sadly due to file size and multi-load from disk, there would have been too much hassle to cram that in.

We also have a fun spooky game by Shaun Pearson. Also an excellent Tetris game by Megastyle. Finally a pick of 4 randomly picked demos of the past.



TWIN TRIS

(C)2002 Megastyle

Programming: Scroll/Megastyle

Graphics: Scroll/Megastyle

Music: Rage/Megastyle

Controls: Joystick in either port

To end on the games front, we have a fantastic Tetris game, inspired by the Amiga Public Domain game, which also consists of the same name. The game has really nice graphics, and some pretty challenging game play, not to mention the amazing effects after one to four lines have been made and eliminated.

How to play:

Using a joystick in either port. Move falling the blocks in place to form rows of lines. After each row has been eliminated, the ground will shake. You will need to make a certain number of lines to complete a level. Each level is formed of either different brick puzzle layouts or faster falling bricks. Try to complete as

many levels as possible. Challenge a friend, and see who comes up trumps with the highest score. Although there is no high score table :)



NEXT MONTH

On the next E-Cover Tape (December). We will be digging deep into the disk drawers to find yet more worthy Public Domain programs and/or exclusives. Maybe we could reveal some more tools, demos or music. Plus maybe, just maybe we could be bringing you a long awaited 6510+ assembler TYPE IN game for the cover tape. You'll have to wait and see what Father Christmas pops in his sack to deliver to you next month. Enjoy this issue's cover tape

Commodore Free E-Cover Tape #8

By Richard Bayliss

COVERTAPE HIGHLIGHT

SUB HUNTER - 5th Anniversary

(C)2008 Psytronik Software

Programming: Richard Bayliss, Paul Hughes (Tape loader)

Graphics: Frank Gasking

Music: Thomas (Drax) Mogensen

CONTROLS: Joystick in Port 2

To start this issue's E-Cover tape comes something special. As the author of this game, I am very proud to celebrate the 5th anniversary of Sub Hunter, by releasing it on to this issue's cover tape. It features excellent graphics by Frank Gasking, and wonderful music by Thomas Mogensen/Maniacs of Noise. It also used the classic Ocean Freeload tape master system (Used with permission of course, as the source is now public domain), This was to give the game some sort of Ocean nostalgic appeal.



The story:

A cargo ship was sailing across the deep blue sea, until disaster strikes. The ship had a fault, in which caused an oil spillage. The oil spillage caused toxic chemicals to spread through underwater. All fish and living creatures turned into mutants and everything just spiralled out of control. Apparently, it wasn't an accident whatsoever. A corrupt government agency deliberately blasted a hole into the cargo ship, which was carting the toxic oil.

As a cover up attempt. Operation clean and rescue was called upon the government. You signed yourself to tackle the mess, in which the corrupt agents had caused. Not only this, there have been sightings of swimmers in the polluted water. The government agency has sent you to seek and rescue those stranded swimmers.

Playing the game:

This game is split into different segments.

Shoot and rescue: Shoot at the mutant fish, sea creatures or enemy agent subs. Some enemies will require more than one hit before they will explode. Rescue a number of swimmers before it is too late. You will have limited oxygen. Once it runs out, the submarine will be destroyed, with you inside it. Shooting the swimmers will sap more oxygen off your tank



Sea wolf style: You have a limited time in which you must drop depth-charges on to passing fish or subs within the time limit. If you have reached your quota, a swimmer will be rescued. Otherwise if you fail to rescue the swimmer, not only will the swimmer be killed, you will also lose a life



Aqua landing: Carefully land your sub to the ground surface underwater, and rescue the swimmers that fall to the bottom of the water. Then carefully make your way back to the top of the surface. During this phase, you will have to watch out for running out of oxygen, and of course avoid getting killed by the swarms of enemies



Commodore Free E-Cover Tape #8

By Richard Bayliss

Shark Attack: This is a survival stage in which you must survive a time limit, through a cave where an onslaught of deadly sharks roam.

Bonus Stage: Now and then a bonus stage will appear – depending on your progress. You have to survive the minefield and pick up gems for bonus points. If you survive the minefield, you will gain an extra life.

The final encounter:

After completing all 24 stages, you will come to the final encounter. A giant mutant shark. This evil creature is out to rule the seas. You must shoot it so many times, before it will be destroyed and the game is finished. The shark will be spitting out fish, and then after many hits, the shark will become much nastier than before. Can you defeat it and save the sea from future peril, or will the sea of chaos reign?

STOP PRESS – WANT TO OWN THE REAL MEDIA?

Although we have given you this game for absolutely FREE. You may wish to consider to buy the original on disk or tape, via <http://www.psytronik.com> or alternatively a cartridge version from the E-Store at <http://www.rgcd.co.uk> but that is entirely up to you :)



HOUSE CASE

(C)1994-2013 Shaun Pearson

Programming: Shaun Pearson (SEUCK)

Graphics: Shaun Pearson

Music: Richard Bayliss

Controls: Joystick in either port

Happy Halloween – oh, ok. Too late then. Ah well... This is a spooky SEUCK game, which was submitted to Commodore Format magazine, and was meant to have appeared on the cover tape, but it wasn't on the tape. Not to worry. We've had kind permission off Shaun to feature this game with new and exclusive music for this month's E-Cover tape. A real trick or treat for SEUCK fans.

and the next day, the owners fled away from the mansion, got their money back and found somewhere else to live.

Suddenly you come along. You notice the mansion. Take a look around and discovered it was indeed haunted. You are fearless and are a GHOST CATCHER.

Playing the game:

Your quest is to explore the graveyard, and the mansion and rid the mansion of all things spooky. You are armed with a GHOST SMASHER X41, a simple camera in which will destroy ghosts in a flash. Avoid getting hit by the ghosts and other evil beings, and make a great escape from the mansion to safety. Warning. If you touch any of the ghosts, you'll become one of those yourself. If you rid the mansion of ghosts then the estate agent will most certainly offer the mansion to you as a reward – or will they not?



A house was built centuries ago by the late Ambassador Richard 'The Iron Hand' Bush. Several centuries later. An estate agent took hold of this mansion and tried to sell it to new house buyers. Although rich people did buy the mansion, they didn't last living down there. Nobody could sleep at all. The house was haunted

Commodore Free E-Cover Tape #8

By Richard Bayliss

BOMBERMAN C64

(C)2007 Samar Productions

Programming: Skull/Samar

Graphics: Skull/Samar

Music: Conrad/Onslaught

Controls: Joystick in Port 2

We were hoping to give you a playable demo of the RGCD commercial game 'Bomberland' on the cover tape. Sadly due to the file size and the game is multi-load. We have been given kind permission to add this neat full game to the cover tape instead. What a corker of a game this is as well. Nice graphics and music, and a whole lot of fun. Originally the game was called Boombastic Benny back in 1996, and was only a preview (No full game came out). However in 2007 Skull decided to give this game an overhaul and came up with this great masterpiece.

You play a Bomber man who has to move around the screen and blow enemies up with the bombs. The only trouble is that the enemies won't keep still. There are walls in your way and also you could drop a bomb and blow yourself up instead. Precise timing is needed so watch your step. As soon as all enemies have been destroyed, locate the exit – by blowing up more walls and flee to it before time runs out.

Thankfully when blowing up some of the walls, bonus objects will appear – which will enhance the game play. They could be extra bombs, mystery good things or bad things. Mind you don't blow



up the exit or other icons, because if you do, more monsters will appear – and you'll have to act quickly to destroy them.

Collect skulls for mystery bonuses or bad features, collect fire icons to increase the strength of the bomb's explosion – beware, you'll become more vulnerable if the explosion is bigger.

WHERE IS BOMBERLAND ???

Bomberland, is available to buy as a digital download or as real C64 cartridge media from the E-Store at www.rgcd.co.uk. Prices vary, depending on the version you wish to buy. It is a great game, which is highly recommended to anyone who likes these type of arcade games. :)

4 PD DEMOS**Public Domain Demos:**

Note: Unlike the other programs, apart from Sub Hunter. These 4 demos uses a different autoboot turbo tape loader instead of Thunderload Series Six. Mainly due to either the file size of the demos, or due to compatibility issues of the loader and program's decruncher system itself (Which I will be looking into in the near future).

Programming: Various

Graphics: Various

Music: Various

Controls: N/A

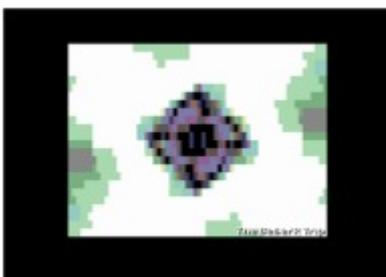
To end this issue's exciting cover tape, we finish off with 4 classic 1-file demos from the 1980's, 1990's to the present year. The demos are as follows:

DOUBLE DENSITY by Ash and Dave, music by Maniacs of Noise.

A classic demo written back in 1988, which consists of no scroll text, but consists of some great picture flipping / morphing animation.

THE BESERK TRIP by Wrath Designs, music by Ed

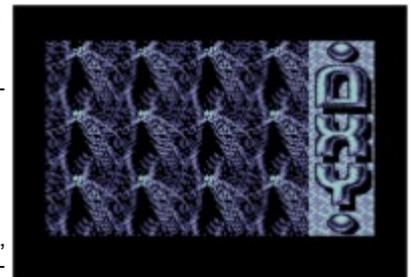
A hard colourful tech intro created by Ed / Wrath designs with very hard pump-



ing sound tracks. Demo was written in 1996.

ONEDER by Oxyron, music by Fanta/Plush

A true masterpiece, with stunning effects, graphics and music. First released at The Party 1997 in Aars, Denmark. One of my all-time favourite one filed demos of all time.

**EXOTIC EXITEMENT** by Camelot, Music by Linus

To end the e-cover tape, some colourful plasma, and neat music all done in 2010. Released at the X-2010 party



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Software Package Includes:

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Check Mate

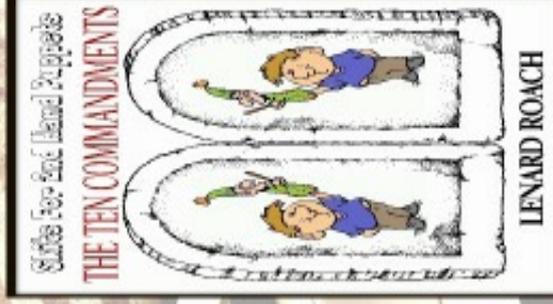
The Ledger

Money Manager 2K (written by Rex Dey)

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GENERAL NEWS

PRINTED MAGAZINE: RETRO PLANET - ISSUE 1

<http://www.amiga.org/forums/showthread.php?s=f9e463fe1f865c3d81b2f427b49c9c9c&p=749114#post749114>

Retro Planet is a new printed magazine from Greece powered by www.amigaplanet.gr

Issue #1 -September 2013 -- is now out. The magazine is focused on Amiga, of course, but it includes topics about other computers and consoles as well. It will come out every three months -- four issues a year -- this is our plan. It is written in the Greek language, however we are planning to promote it on-line as well, with some special exclusive articles in English, so stay tuned! To give this goal a head start, we have uploaded our English Blog here:... (Please click 'Read more')

<http://amigaplanet.wordpress.com/>

We think it is important to mention this fact here, because Retro Planet is the one and only printed magazine about Amiga, and other retro stuff, in existence in Greece and it's one of only a handful currently distributed worldwide (to-

gether with Amiga Future, Retro Gamer etc.)

You can view more details about the mag in English here: <http://amigaplanet.wordpress.com/201...ality-at-last/>

We already have an English section online in our forum here:

<http://www.amigaplanet.gr/forum/viewforum.php?f=49>

Check also:

<http://www.pinterest.com/amigaplanet/boards/>

As you will notice, Cyrus is standing proud on our debut front cover. An interview with Trevor Dickinson is our main article -- this is the first interview Trevor has granted to the Greek media.



CASSIOPEI CASSETTEPORT BASED DEVICE

The Cassiopei, is a cassette port based device. It can load .PRG files 50 times faster than the standard tape protocol and more importantly it can work on all 8-bit cassette port equipped Commodore computers. Ranging from the PET series to the C128. The Cassiopei looks more like a cartridge than a tape device and that is exactly how you should see it. As tape is slow and not user friendly, the Cassiopei is. Once properly configured along with the proper files and programs, you plug it in, type load on your CBM and press the menu button. The menu is loaded and shows you all available programs on the device, simply choose one from that menu and it start automatically, very easy. No fast forward, rewind or those annoying load errors.

In this YouTube video Jan demonstrates some of the possibilities of the Cassiopei. This device can be used to load programs via the datassette interface 50 times faster than the standard tape speed, it has a I2C interface, 2 analogue inputs, a PWM audio output for playing back .WAV files (8KHz, mono, 4/8Bit) and a simple speech synthesizer.

Demonstration video of the Cassiopei.

http://www.youtube.com/watch?v=Vtb_G8iajXE

<http://jderogee.tri.pod.com/>



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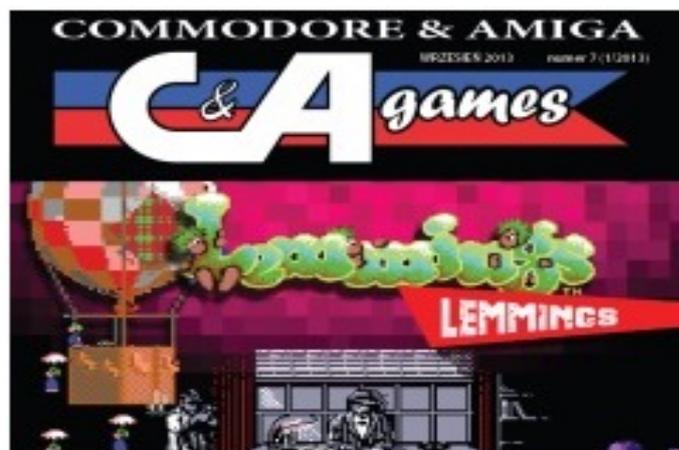
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GENERAL NEWS

C&A GAMES ISSUE 7 / 8 / 9 AND 10 RELEASED

The Polish magazine Commodore and Amiga Fan released another games edition. In this ISSUE 7 PDF magazine the following articles: News, Duke Nukem 3D, The Goonies, Primate Plunge, Project: Starfighter, Quakeland - Tomorrow Never Dies, Interview: Marianem Awgulem, Teenage Mutant Hero Turtles: The Coin-Op, Tribute to Psygnosis, Prohibition, Berzerk Redux, Retrogaming, The Castle Of Madness, Elidon, Revival Studios, Lemmings, Revenge of the Tomato, Sir Ababol, Triss, You Have to Win the Game and C64 Games 3D.

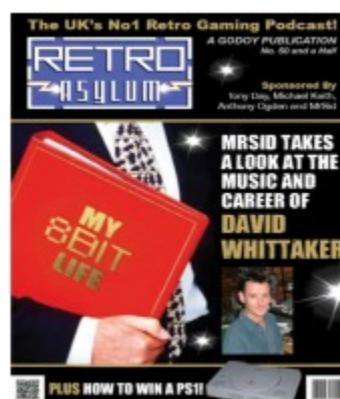
<http://dl.dropboxusercontent.com/u/33833039/index.html>



RETRO ASYLUM PODCAST : DAVID WHITTAKER

A new edition of the Retro Asylum Podcast (English language) is now available. In this edition: David Whittaker. David is a music composer who made music for the Commodore C64 and Amiga, a few example are: Shadow of the Beast, Obliterator, Xenon, Beyond the Ice Palace, Speedball, Glider Rider, Storm, Street Surfer and Armageddon Man.

<http://retroasylum.com/episode-50-12-my-8bit-life-david-whittaker/>



RETROCOMPUTING RETROSBIANCANTE

RetroHC developed a new version of RetroBright called RetrOSbiancante. RetroBright is a chemical solution that can erase the yellowing of plastics. RetroHC was searching for a new formula, because the original chemicals are hazardous and difficult to buy. The new solution is whitening gel and a oxidizing gel for your hair. You can read all the details on the blog of RetroHC.

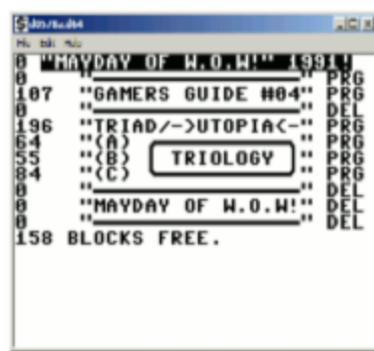
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Arc64 UPDATED TO V2.5

Arc64 is a tool to deal with D64, T64, LNX and ZipCode archives, made by Graham. It can be used to edit or convert D64 images, run D64 images in the VICE emulator. Changes in this version: The problem with spaces in filenames is resolved. And a couple of error messages are added

http://csdb.dk/getinternalfile.php/119999/Arc64_25.zip



VIC NEWS

PITFALL - VIC20

Victragic is working on a new game for the Commodore VIC-20. It's a VIC-20 version of the Atari 2600 version of the game of the same name. If you want to play the game you need a PAL version of the VIC-20 with a memory expansion. You can follow the progress on the Denial forum. The game is played via a joystick and a preview download is available just follow this link

<https://docs.google.com/file/d/0BypQg4QBo87vU3pKQ2E3eW1wSHc/edit?usp=sharing>

it does flash up unavailable but if you persevere you will see a download button appear, from what I have played with

the preview it seems very slick well animated and extremely fast, I for one am eager to try the finished version, the preview also has sound! Brilliant. On the 2600 I never did master grabbing hold of the rope

<http://sleepingelephant.com/ipw-web/bulletin/bb/viewtopic.php?t=6659>



VIC20 / C16 NEWSSTAND COMPILATION (2)

On the Plus/4 World web page you can find another rare newsstand compilation cassette for the Commodore C16 / Plus/4. The compilation cassette was made by Pubblirome and has the following games: Il Legionario, Scimmia Magica, Corsa Sul Fiume, Meteorite (Pubblirome), La Spia, Tennis (Pubblirome), Velocipede, Guerra Totale, Vecchio West, L'Esorcista, Breakout, Cruise, Il Genio, Astronavi Aliene and Anatomia.

http://plus4world.powweb.com/software/Super_VIC20-C16



PLUS 4 NEWS

TREE SOME RELEASED FOR THE - PLUS/4

http://plus4world.powweb.com/software/Tree_Some

Luca has created a game for the Commodore Plus/4. called "Tree Some" the game is a conversion of the C64 version. written in BASIC the game uses only the standard PETSCII characters on the screen. In the game you play a tree and you need to fight against people who want to cut you down. Long live the Trees.



C+4Hires PICTURE DISK RELEASED

<http://plus4world.powweb.com/software/CPlus4Hires>

C+4Hires is a brand new picture diskette released for the Commodore Plus/4. Created by Carrion the disk contains 15 high resolution pictures converted from the Commodore C64. The original artists are: Archmage, Duce, Leon and Veto.

So the question has to be asked do they look better on the C64 or on the plus 4 and I have to say that with the plus4 extended colour palette they look much better on the plus 4 than the c64 (well in my personal opinion anyway)



Commodore plus 4 version



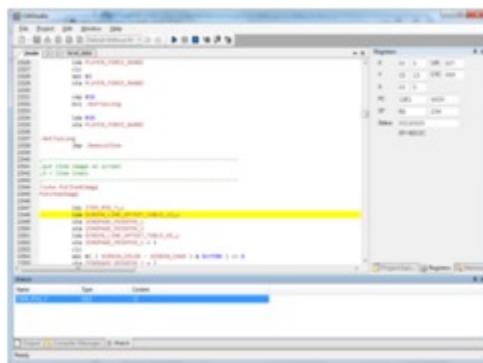
Commodore 64 version

COMMODORE 64 NEWS

COMMODORE C64STUDIO V3.1

C64 Studio is an assembly development environment which is dependent on VICE. You can write assembly code and test this with the VICE emulator. Recent changes: Improvements for the Read Only displays (Output), Search all function, Replace all function and the Debugger now jumps to disassembly if CPU pointer is not in code.

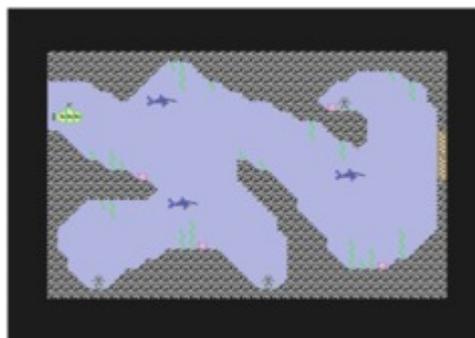
<http://www.georg-rottensteiner.de/en/c64.html>



SUBMARINE RESCUE - C64

Submarine Rescue is a new game for the Commodore C64 made by Marek Sowo (Noctropolis). In the game you must rescue divers from different caves. You must avoid the sea creatures, rocks and plants. If you save three divers you can go to the next level.

http://csdb.dk/getinternalfile.php/120054/Submarine_Rescue.t64



CBM 64 WINDOWS 105



Errrrrm Windows 95 for the Commodore 64 written entirely in Commodore Basic, really I should end there but ... After you see the loading screen

Pressing the space bar seems to move you to the desktop

The program features

The desktop and start menu, also a DOS, Corel Draw, Notepad, Writepad, Documents, Excel some games

The program is run by key presses from what I can see so pressing S on the desktop brings up the start menu



Then pressing the underlined letter will start the program or perform the task so pressing H will SHUT DOWN the computer!

There you have it then

<http://c64tape.blogspot.co.uk/>

you may also like to see the videos of the application running here

<https://www.youtube.com/channel/UCZm3k1Q3cRkx1gvOfTqMBUw?feature=mhee>



COMMODORE 64 NEWS

USE MSSIAH WITH SD2UIEC SOME GENERAL ADVICE

COMMODORE FREE

Nothing is better than general advice unless it's a colonel giving the General advice, well its sounded good to me..

<http://www.8bitventures.com/mssiah/>



From: Terry Raymond
Sent: 15 September 2013 01:44
To: Commodore Free
Subject: Use Mssiah with sd2uiec

I cannot remember who it was awhile back was trying to set-up their new sd2uiec with the Mssiah Midi cartridge.

First off determine what device number your sd2-uiec is using, simply pull up the disk directory LOAD"\$",DV (DV is the device number) If you get any errors then keep trying the directory until you can pull up a directory and that of course is the device number the UIEC's firmware is set.

If you want to change the device number do the following:

```
OPEN1,10,15,"U0">+chr$(new address):CLOSE1
(the "new address is the device number you're changing")
```

If you want to save the current device number setting do the following:

```
OPEN1,new address,15,"XW":CLOSE1
```

Now insert your Mssiah cartridge

If you have any other C= drives attached to your C=64 power them up in sequence.

NOTE: all C= drives device numbers must not conflict with the sd2uiec device number.

MSSIAH cartridge only supports disk drive device numbers: 8-11

Go into MSSIAH "device manager" menu use cursor up/down keys to scroll down to

"DRIVE" then (press return key), then: select "the device number" (use the cursor left/right keys)
 So select what device number your sd2uiec uses.

Now from the menu select "directory"

The cartridge seems to have a way to save the current drive settings etc., I tried to save and then "power down computer". Powered up and checked the device number but it wasn't set to Device #11. So I don't know how that works.

Now load the Sequencer from the main menu:

To test to see if you can save a Midi file to the sd2uiec load the Demo:

first select "NEW"

Now select LOAD, the demo is loaded in a flash, to get back to the main menu

press the arrow key that is above the "control-key". until you're at main menu.

Now select "save" and select "disk" (I believe is how its labelled)

and then select the device number here, use the device number you're sd2uiec uses.

The activity light will come on (on the sd2uiec unit) be patient and after a time the light will go out.

Now select "NEW" again to wipe out the demo.

Now select "Load or Open" and select Disk drive and its device number,

The file will take a while to load. Should work.

I tried all of this with my 128DCR (metal case) and was able to both LOAD and SAVE okay with MSSIAH.

I hope this helps and works for you (sorry I forgot your name)..

BTW if you have a Super CPU plugged in just switch off all of the toggle switches, but if you do a reset the cartridges ROM will not load (just goes to basic).So switch the system completely off and back on and the MSSIAH should then boot.

Hey how do I connect the Din connectors from the Midi Keyboard?

How can I determine what Midi channel to use ?

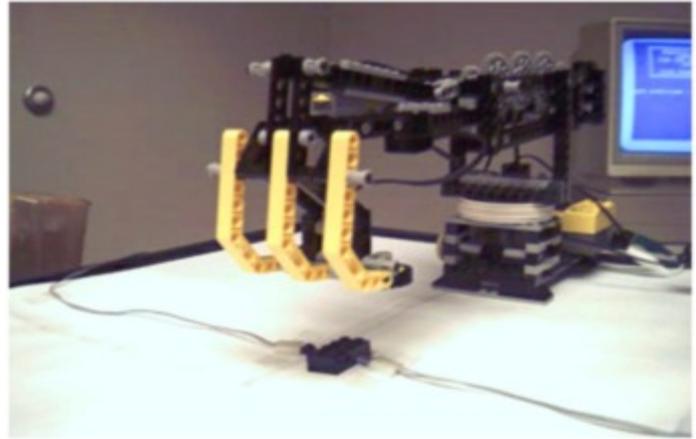
Sincerely,
 Terry Raymond

COMMODORE 64 NEWS

COMMODORE AND LEGO

Commodore Addict made a web page to show his Commodore and LEGO setup. He uses a Commodore 64/128 to control his LEGO Mindstorms / Technic built robots. The interface is a B100 interface unit from a kit that was called the Robotic Workshop, which was manufactured in 1986. The joystick can be used to control the robotic arm.

A Robotic arm built with Mindstorms Robotic Invention Kit 2.0
http://www.geocities.ws/commodore_fun_addict/



JIM DREW OPENS WEBSITE + INFO ON SUPERCARD PRO

-----Original Message-----

From: Robert Bernado

Sent: 01 October 2013 03:34

To: Commodore Free

Subject: Jim Drew opens website + info on SuperCard Pro

Jim Drew, veteran programmer and hardware developer, has opened up his new website <http://www.cbmstuff.com>

Still a work in progress, his website right now offers the SX-64 Ultra Reset and the much-awaited SuperCard Professional, touted to be better than a Kryoflux board at reading/copying and writing floppy disks from virtually any computer platform. Here are the final specifications of SuperCard Pro --

CPU: 40 MIPS (PIC24HJ256GP210A)

RAM: 512K STATIC, 55ns

USB: FTDI 240X FIFO, Full Speed

SERIAL: Dual RS232 ports, one full or half duplex, one half duplex

FLOPPY: 34 pin standard PC floppy interface, fully bi-directional

SD-CARD: Micro SD card slot (1GB or larger cards)

RESOLUTION: 25ns

POWER: USB can power 3.5" drive directly, external power supply required for 5.25" drives

MISC.: Future expansion port for IEC interface, future cycle exact 1541 drive emulator, possible SD2IEC.

SOFTWARE: disk copier/imager and analyser software compatible with

Win95-Win8.1

On the waiting list for a SC Pro,
 Robert Bernardo

Fresno Commodore User Group

<http://videocam.net.au/fcug>

The Other Group of Amigoids

<http://www.calweb.com/~rabel1/>

Southern California Commodore & Amiga Network

<http://www.sccaners.org>

CBMSTUFF.COM

commodore

Welcome

Modern meets retro
 Welcome to our website!
 Here you will find information about our products, retro computing news, interesting facts about the retro computing, emulation information, and much more!

Our Focus
 Commodore computer systems, including the Commodore 64, 128, PET, and Amiga systems is the main focus of our company.
 These computer systems are making a big come back, and we expect the interest level in retro computing to grow substantially in the years to come.

Bringing Back the Retro In You!™

© Jim Drew, 1983-2013

COMMODORE 64 NEWS

HOXS64 EMULATOR UPDATED TO V1.0.8.6

<http://www.hoxs64.net/>

Hoxs64 is a Commodore 64 emulator for Microsoft Windows XP / 7. The emulator substantially reproduces this legacy machine in minute detail. Hoxs64 is available for free download and has just recently been updated to version 1.0.8. Released by: [David Horrocks](#)

Features

- A cycle exact emulation.
- Pixel exact VIC emulation of a C64C (the grey dot bug is not emulated).
- 1541 floppy disk drive (read and write).
- Tape player (read only).
- State save.
- Debugger.
- Full screen display.

Cartridge support is as follows:

Action Reply
Retro Reply
Easy Flash (1MB)
Ocean
System 3

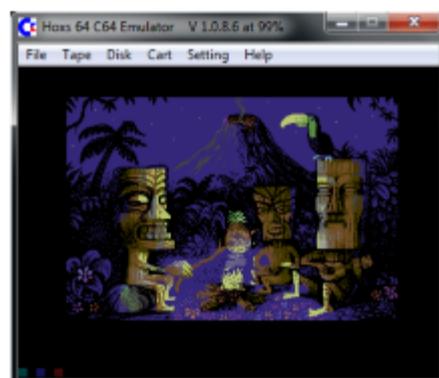
Dinamic
Magic Desk
Super Games
Zaxxon
Fun Play
Simons Basic

Host PC Requirements

- Windows 7, Windows XP
- Core 2 Duo 1.5Ghz or Athlon 2Ghz or Pentium4 3Ghz.
- 1 GB RAM.
- 512 MB Graphics Card.
- DirectX 9 October 2006 or higher.
- Uses d3dx9_31.dll (32 bit) or d3dx9_31_x64.dll (64 bit)

Installation

Install Microsoft Direct X.
Copy all files to the same directory.



COMMODORE C64 80 COLUMN ADAPTER

COMMODORE FREE

Information taken from the <http://c128.com/> website

I have found several sets of drawings in a box that dates back 30 years to when I worked at Commodore Business Machines in West Chester PA. I had assumed that these products eventually got released but I am starting to learn that maybe not. It might be possible that some of the schematics I will be posting have not seen the light of day outside the halls of CBM, unfortunately not all of them are complete sets.

We did have a constant background of projects that about 2/3 of the engineers whiled away the time while the annual release cycle projects that ultimately were shown at January CES in Las Vegas would go from conception to delivery in the foreground, often taking less than 6 months. This project was one of several that had the theme of 80 columns, and it's possible I suppose, that this product would not have been sold so as to promote the C128 if someone wanted 80 columns. Or its possible we were just confused after the driving force of Jack Tramiel was no longer with us.

Looking at the title block in the corner I see that this was drawn by our drafting person, Sue, and signed off by Doug Renn, a co-op that became engineer, working mostly on the Z8000 project, and ultimately was one of the guys that jumped to Atari when Jack Tramiel took the reins.

Much thanks to Mike Naberezny and his father for the work doing the scanning, and to Steve Gray for putting the bug in my ear and hooking me up with Mike.

Bil Herd

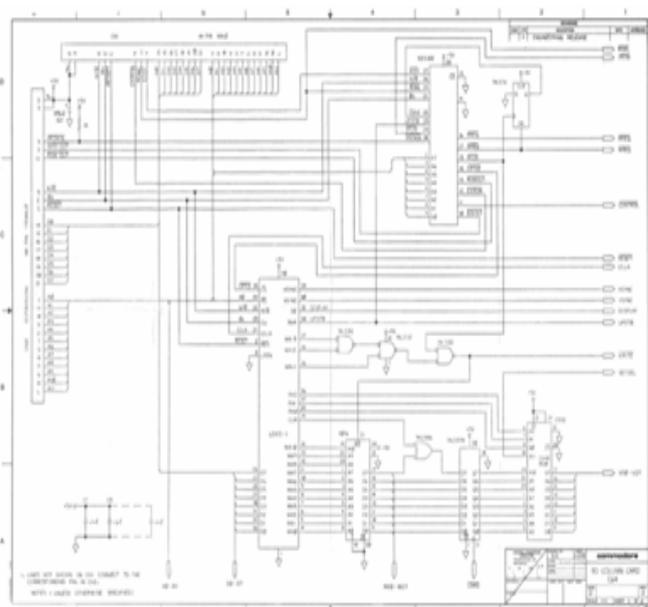
C64 80 Column Card Schematic 1 of 2

http://c128.com/images/c64_80_col_1_of_2.png

C64 80 Column Card Schematic 2 of 2

http://c128.com/images/c64_80_col_2_of_2.png

<http://c128.com/commodore-c64-80-column-adapter>



Amiga News

BED GAMES 1: CAROLA AVAILABLE FOR MORPHOS & AMIGAOS3.9

The classic game of rock, paper and scissors in a review programmed with Hollywood with the incentive to try to gain Carola and all her pledges before she wins you. This "Final Version" has new graphics and great quality pictures of Carola, new sounds, new accuracy in the help menu, new graphics for your lives. Do you accept the challenge of trying to undress Carola? (Please click read more.)

This game is portable and it does not need installation, you can play from an USB stick, Pen drive, etc.

Warning: this game has sounds with explicit sexual content, please don't download it, if that could possibly offend you.

Improvements from this new version:

- Compiled with the latest Hollywood 5.3.
- New graphics for the hands.
- New sounds.
- New pictures.
- An 'only play' mode.
- New versions for MorphOS and AmigaOS3.9.

Download from: www.morguesoft.net Also available for AmigaOS4 and Windows.

TWIT TV TRIANGULATION » EPISODE 118: TIM JENISON

TWiT TV Special Episode #118 Leo Leo Laporte interviews Tim Jenison founder of NewTek Inc.

Tim Jenison is the subject of the new documentary, "[Tim's Vermeer](#)". The Amiga & Video Toaster are mentioned many times in this interview as is the history of Tim & NewTek. A must see interview!

<http://twit.tv/show/triangulation/118>

AMIGA WHDLoad

WHDLoad offers a way to play Amiga diskette games from your hard disk. New: Project Techno (Quartz), Megademo (Powerslaves), 24 Hour E Fix (Quartz), Music Compilation (Random Access), Mini Soundbox 1, 2, 3 (Shadow Light & Level 4), The Simpsons (Decay), Hinch Demo (Decay), Steve Vizard (Decay), Sound De Light (Software of Sweden), Megademo (Software of Sweden), Demo Disk (Quest), Sound Quest 1, 2 (Quest) and Sound Disk 2.

<http://www.whdload.de/>

AN SDK UPDATE (FINALLY)

NEWS FROM HYPERON

It has been a long time coming but we finally got around to releasing an updated Software Development Kit (SDK) for the Amiga Operating System. You can download it from Hyperion's server.

This SDK includes all the usual includes and autodocs you need to use all the latest released AmigaOS features. The AmigaOS Documentation Wiki contains all the higher level information you need and will continue to be updated to help explain everything. The wiki also has a new Frequently Asked Questions section where we will post the most common problems and solutions.

This SDK is also a tad incomplete because I ran out of time to prepare it before AmiWest 2013. Therefore, there will

be another SDK update or two sometime after the AmiWest show which will include even more.

We will also try harder to provide an updated SDK much more regularly from now on. Thanks to AmiUpdate we now have a way to deliver all sorts of SDK updates as needed with minimal effort.

Support for the SDK is available from the official AmigaOS support forum. You may also want to give OS4Coding a try if you get stuck on something.

An SDK Update (finally)

<http://blog.hyperion-entertainment.biz/?p=1001>



SYASOKOBAN V2.0.1 - AROS

syaSokoban is a game for AROS. The game was developed by Hiroyuki Imabayashi in 1982 and is converted to AROS by Cavemann. In the game you push boxes in a warehouse to a designated position. The game has 90 levels, but you can add more levels yourself.

<http://archives.aros-exec.org/?function=showfile&file=game/puzzle/syasokoban.i386-aros.zip>



AMIGA FOREVER AND COMMODORE 64 FOREVER

Amiga Forever

<http://www.amigaforever.com>

<http://www.facebook.com/AmigaForever>

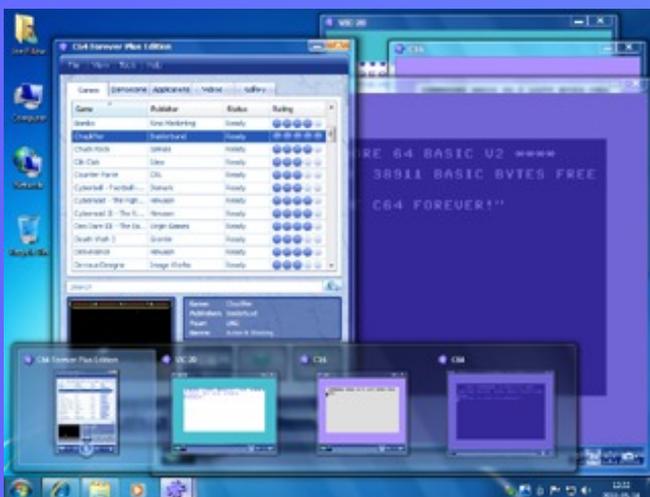
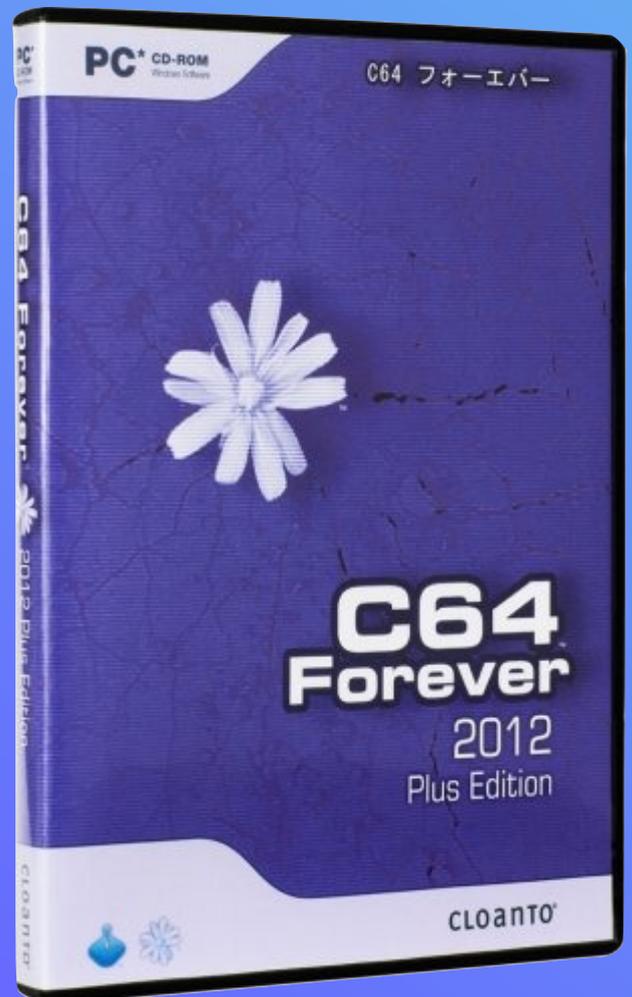
C64 Forever

<http://www.c64forever.com>

<http://www.facebook.com/C64Forever>

RetroPlatform Project

<http://www.retroplatform.com>



SPEAKING NOTES FOR A PRESENTATION

BY JIM BUTTERFIELD WITH ROBERT BERNARDO

COMMODORE FREE

Whilst working on some D81 images for Loanard Roach I came across this text, Leonard doesn't seem to know the origin and although its credited with Roberts name as well as Jims, Robert says he doesn't know anything about the text, I am reprinting this as it's a little slice of history that could otherwise be lost

The following material is speaking notes for a presentation I made at York University on Friday, March 18th, 2005. Since they are speaking notes, they are not exactly in publication form: and, at the presentation, I might well have omitted some material and added other stuff (especially in response to questions.)

I. A little about myself -

I'm Jim Butterfield. My first encounters with computers took place back in 1963. My background was math and electronics, working mostly in the field of telecommunications. My first machine was a computer nobody had heard of: The Collins C8401, programmed in assembly language. So when microcomputers started to arrive in 1976, I had an advantage over most hobbyists: I'd worked with computers for a dozen years or more. I was in a good position to write about these devices, which were unfamiliar to most readers, and I did so.

Most of my experience was with Commodore computers. What follows will be from that viewpoint, and I'll talk almost exclusively about the 8-bit world. It was a fun time. I should mention that I have never been an employee of Commodore, or owned stock in the company. My viewpoint is that of an outsider, although Commodore personnel have always been open and frank in responding to the many questions I have asked over the years.

II. Industry Prologue -

By 1963, transistors had replaced vacuum tubes, and the industry had settled into a form of stability. Although there were a number of computer manufacturers, IBM enjoyed over two thirds of the market. Industry watchers often referred to "IBM and the Seven Dwarfs."

Why did IBM dominate? In part, it was because they had been in the data processing business long before the arrival of computers. Using Hollerith punched cards, IBM had an array of "unit record" equipment such as keypunch devices, tabulators, and sorters; they had decades of experience in handling data.

A second reason for IBM's strength was that they leased their equipment rather than selling it. And with the lease came support, with system engineers on site or on call. Industry people talked about being sheltered by the "IBM umbrella." And, as a general rule, software was free. Assemblers, compilers, generators ... phone your IBM rep and he'd send over a copy. Need personnel training? IBM would do it free. Or, at least, at no extra charge.

III. Underground Fun -

Even in those days, computer programmers and operators would have secret amusements. Secret, because senior management would have misgivings about 'horsing around' on a multi-million dollar computer. Pictures were drawn on the line printer, patterns generated on punched card or paper tape, games were created and played, jokes were being played on co-workers, and music was being played on these computers. Note how the word PLAY seems to be repeated.

The seemingly impossible job of playing music on computers that had no speakers was accomplished in several ways. The hammers of line printers could be carefully timed to produce sounds of a selected pitch; the paper advance chain could be declutched and made to furnish drum rhythms, and a transistor radio placed adjacent to the CPU, where it would pick up the electromagnetic emissions, and would play a selection of popular numbers.

IV. Transitions -

In the time frame between 1963 and 1971, there were a number of changes that helped shape the nature of microcomputers to come.

Minicomputers started to gain acceptance in 1965 with the Digital Equipment Corporation PDP-8. These "minis" were stripped down computers, designed to sell for a paltry \$10,000 or so. In the early days, magnetic core memory was a major cost impediment, and attempts were made to circumvent it with other resources. I recall that the PDP-8 used a serial memory (a mercury column delay line). It was said that if you stamped the floor, you could change its memory contents. Minicomputer technology didn't have much effect on future microcomputers, but it's interesting to note that a powerful user group, DECUS, grew around the PDP series, and may have been a precursor to microcomputer users groups that appeared much later.

In 1965, General Electric introduced "Time Sharing" service, where users could concurrently make use of a central computer. The terminal device was usually a Teletype (TM) machine. The major impact of time sharing on the future



SPEAKING NOTES FOR A PRESENTATION BY JIM BUTTERFIELD WITH ROBERT BERNARDO

microcomputers was its choice of language: Basic, both adored and vilified.

By 1971, the expensive and labour-intensive magnetic core memory that had been the heart of computers started to be replaced by semiconductor memory. This set the stage for on-going price reductions, which we still see today.

This, in turn, spawned another product that was to become important in the future microcomputer world: The Floppy Disk. Magnetic core memory had been non-volatile. Once loaded, it kept its contents even when power was off. Semiconductor memory needed to be reloaded, and the 8-inch floppy disk was created by IBM for this purpose. Initially, it was a read-only device, whose contents would be created at the IBM production facility

V. Emergence of LSI: Viatron (1970), then Intel (1971) -

As fabrication techniques were advanced, more and more elements could be packed onto an integrated circuit chip. The first chips were flip-flops and gates. Then came larger assemblies such as shift registers and ALUs (arithmetic/logic units). Inevitably, a complete CPU (Central Processing Unit) would be placed onto a single chip. With a collection of chips such as CPU, memory, input/output, and some sort of control logic in a ROM (Read Only Memory), a complete computer system could be put together.

The first microcomputer that I know of was made in 1970 by an almost forgotten company called Viatron. Viatron's main marketing thrust was terminal devices as inexpensive substitutes for Teletype, N machines, which were priced in the \$1,000 to \$1,5000 region. Viatron's concept and design was good, and they advertised massively in Datamation magazine. But their fabrication plant had poor chip yields, and eventually they disappeared from the scene. The Viatron era called for some technical innovation. CRT display devices were rare and generally costly; modestly priced printers were virtually unknown. Viatron's use of a converted television displays and "printing robots" seems quaint today.

Intel entered the microcomputer field in 1971 with the 4004. It seems almost as if Intel wasn't planning this as a product; they needed to find a quick way to fulfil their contract to build a calculator for a Japanese firm, and devising and programming a microcomputer seemed to be the quickest method, but once the 4004 had been devised, the electronics industry accepted it quickly as a general purpose component which replaced wiring with code. Motorola announced their 6800 chip very quickly.

VI. The Emergence Of "Hobby" Micros; Early Users Groups -

There was a rush to build. Even before computers were offered in kit form, hobbyists were salvaging parts and building logic devices. A friend of mine, Julien Dube, salvaged some magnetic core memory from a telecommunications relay device, and restrung the little ferromagnetic dough-

nuts into a working memory, with a view to creating a small computer of his own design.

Kits came on the market from various small entrepreneurs. Electronic houses produced their own versions, which consisted of a circuit board and a bunch of chips loose in a plastic bag. Sometimes the supplied circuit boards had printed circuit connections; other time you were expected to make the connections yourself using wire wrap techniques (rarely soldering). Sometimes the parts worked, sometimes they were defective, and sometimes incorrect wiring would wreck the chip. A saying of the times was, "All computer chips are powered by smoke; if the smoke gets out, the chip will fail."

When the December of 1975 issue of Popular Electronics described the Altair 8800 computer, available in kit form for about \$500, the computer hobbyist world took off.

The Apple I was also a kit that you needed to assemble yourself. The founders of Apple - Wozniak and Jobs - liked the new, inexpensive 6502 chip, and designed their system around it.

Users started to get together and swap notes. In the Toronto area, TRACE (Toronto Regional Association Of Computer Enthusiasts) was under way in early 1976. An amazing assortment of machines was under construction. Some like the Intel 4004 or 8008, some the Motorola 6800. Memory was whatever came to hand, seldom more than 256 bytes. And input/output ... paper tape, toggle switches, home-brew keyboards, LED or LCD character or numeric displays, arrays of LED lights. Whatever you could get your hands on, or afford. There was little commonality between one home brew machine and the next.

Oddly, few of the builders had any idea of what to do with the computer once it was complete. This may have been due, in part, to the shortage of programming skills: and lack of standardization across the assortment of machines also posed difficulties in conceptualization. In 1977 and 1978, the Ontario Science Centre invited TRACE members to display their home computers to the public. One member's computer controlled a model train set; another played simple logic games; one played simple music tunes. And I believe a couple just sat there, perhaps blinked lights, and looked pretty.

VII. The Struggle For Standards -

There was an attempt to introduce some standards into this tower of Bit Babel. Two areas of concern seemed to be: A standard wiring concept, to connect several boards; secondly, a way to exchange data.

The S-100 bus was conceived as a standardized way to pass information between the various units of the computer. It included schemes for pin numbering and for power distribution. It was in use for a number of years until the IBM PC juggernaut took over.

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A form of standardization existed for paper tape input and output, carried over from teleprinter days. An attempt was made to generate an audio data standard, mostly for data storage on cassette tapes, called the Kansas City Standard. It didn't take hold.

The Basic language was starting to creep into the scene. Hot debates were taking place between users on the west coast of the USA as to how a simple Basic interpreter could be constructed in a small amount of memory storage: 8K, 4K, or even 2K. "Tiny Basic" was produced as a free program; to publish it, the authors started a publication which they called "Dr. Dobbs Journal of Computer Calisthenics and Orthodontia." At that time, Dr. Dobbs was conceived as a public domain vehicle; all material in it was free from copyright. The publication still exists, but the whimsical name has been truncated to "Dr. Dobbs Journal." ... and its contents are now copyright.

A side comment on whimsical names: When Gary Kildall developed a standard operating system, he called his distribution company, "Intergalactic Digital Research." A few years later, as IBM entered the field, the "Intergalactic" was dropped. In a similar vein, Commodore called their first home computer "PET", perhaps after the "Pet Rock" fad; but later regretted the name as they tried to convince the marketplace that their products were serious business machines. I'm sure they were not influenced by the fact the "PET" means flatulence in French.

VIII. The KIM-1 -

My first microcomputer - other than a logic device powered by rubber bands that I had constructed years before - was the MOS Technology KIM-1. KIM stands for "Keyboard Input Monitor", which was the operating system of this tiny single board machine.

The "engine" of the KIM-1 is a 6502 microprocessor. This chip was designed by a group of ex-Motorola employees, who took the design of the Motorola 6800 and introduced new concepts and improvements. Leading the team was Chuck Peddle, a name you'll hear again in this presentation. The 6502 was a late arrival into the early microcomputer world. Motorola and Intel chips had already gained acceptance; and even though the 6502 would outperform them, its merits were not immediately recognised. So MOS Technology priced the chip well below the competition: the 6502 was \$25 in single unit quantities; competitive chips were around \$150 and had to be order in batches of 100. After the 6502 was completed, and legal disputes settled, MOS Technology decided that they should produce an "engineering sampler" board, which would show what the chip could do. They populated the board not only with microprocessor, RAM, and input/output; they also added a teletype interface, and LED display, a 20-key keypad, a facility for audio output and input (to save programs), and an operating system called KIM. And the board was factory assembled; all you had to do was to add a power supply and you had a complete system.

Here's the important part: Because the board came pre-assembled, everyone had exactly the same system. For the first time, you could swap programs with other users and be confident that they would work without being "touched up" to fit the system.

I wrote a few programs - games, amusements, utilities - and wrote MOS Technology to see if anyone wanted them. They wanted them for themselves in order to demonstrate the KIM-1, and had also heard from a fellow in the Cleveland area who was starting a newsletter. And thus began "Kim User Notes", edited by Eric Rehnke.

The newsletter acquired hundreds of subscribers. MOS Technology must have been amazed to see this intended engineering prototype become a popular home gizmo. In time, it also became widely used as a training device.

About that time, I heard from a young fellow who worked at Honeywell who said he was working on a program for the KIM-1. His name was Peter Jennings, and his project was to write a chess-playing program in the KIM's tiny 1K of RAM. He did it, too. In these days of gigabyte memory, it's sometimes refreshing to think that Peter could play chess with only a little over 1K... even if it didn't play at a grandmaster level. Peter later went on to be one of the creators of code for VisiCalc, the first microcomputer spreadsheet program.

IX. Publications, and The First Book Of KIM -

Meanwhile, there had been a few personal computer publications. During his time with a minicomputer firm, David Ahl had gathered together various games that users had contributed, and published "101 Basic Games." On the west coast, Bob Albrecht had formed a group called "People's Computer" and had produced a similar volume entitled "What To Do After You Hit Return." In both books, the programs were supplied in the language Basic. They could be played on time-sharing systems, or Basic could be fitted to those computers that had enough memory - not very many of them in the early days.

Meanwhile, we KIM-1 users were contributing lots of programs to be printed in KIM User Notes. I suggested to another user, Stan Ockers, that perhaps we should bundle them together and put them into a book. The editor of the Notes,



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Eric Rehnke joined us in the enterprise and we privately printed The First Book of KIM.

As best I recall, we estimated our market at about 600 copies. We printed 2,000, sold about 1,000, and the remaining copies burned up in a garage fire. There was still demand for the book; people got mad at us when we said we had no more copies. So a publisher picked up the demand, and many thousands more were sold. There were also two editions printed in Germany, one authorized and one pirated. The authorized publisher never sent any royalties; the pirate publisher sent us secret payments. Go figure.

X. Commodore stumbles into the computer market -

In late 1976, we heard that MOS Technology had been acquired by a firm called Commodore, which was known for making office furniture and calculators. There was to be a new microcomputer system called the PET.

The KIM-1 thus became a Commodore product, which is why I sometimes say that I programmed Commodore computers before they made computers. Jack Tramiel was the founder of Commodore Business Machines. A former inmate of Auschwitz, Tramiel had started out with a part-time typewriter repair shop in the Bronx, supplemented by driving a taxi. In 1962, he moved to Toronto and set up a typewriter manufacturing business. He soon switched to calculators, and these devices soon made the transition from mechanical devices to electronics.

In October 1976, Tramiel took over MOS Technologies, which he perceived as a manufacturer of display devices and semiconductors. He got more than he bargained for. He also got Chuck Peddle, the designer of the 6502 chip. And Peddle was determined to build a home computer.

Peddle had taken a look at a prototype version of the Apple II, and had wondered if Commodore should buy the company. He eventually decided that Commodore should build a home computer of their own design, and quickly talked Tramiel into it. An early model of the PET was shown to Radio Shack, in the hopes that they would sell the unit; but Radio Shack, in turn, opted to build their own home computer. Commodore had undergone some trauma in its organization and financing. As part of a new corporate financing deal, corporate headquarters was moved to the Bahamas, and administrative office were set up in the Philadelphia area. But Tramiel's heart apparently remained in Toronto. The corporate airplane - the PET jet - was often to be seen in a hangar at Pearson airport during the many years that followed.

XI. Apple, Commodore, Tandy -

Three companies - Apple, Commodore, and Radio Shack - seemed to announce their models of a home computer simultaneously. The question of "who was first?" will never be solved. Commodore displayed the PET at the Consumer Electronics show in January 1977, Apple sold their first unit at the March West Coast Computer Faire. Radio Shack didn't enter the field with the TRS-80 until August, but they were able to sell units in quantity right away.

Here in Toronto, we first saw Commodore computers in quantity at the Canadian National Exhibition. One of the themes for that year was "chess". Commodore furnished dozens of PET computers, furnished with Peter Jenning's Microchess program, at a site in the Coliseum area; visitors were invited to sit down and play chess.

With little access to a dealer network, Commodore had a curious method of achieving sales. Buyers would send Commodore money - about \$600 US - and Commodore expected that they would ship the PET within three months! A lot of PET deliveries in the area took place immediately after the CNE closed.

XII. Commodore Design Excellence -

The Commodore PET was a remarkable machine in many ways, with features you did not find on its competitors of the time. Many might be considered ahead of their time. The PET, and all following 8-bit products, had "screen editing." Instead of receiving information from the keyboard, the operating system transferred the received keystrokes to the computer screen. When a RETURN key was pressed, the system then read from the current line of the screen, and took the data from there. This made screen editing simple and truly WYSIWYG ("what you see is what you get"), and later allowed some elegant programming tricks. This was far from intuitive back in the days when much computing was based on teleprinter input.

Associated with this was the concept of keyboard interrupt handling. Since most keystrokes were collected into a buffer for subsequent delivery to the screen, the main system could ignore them and go on with whatever job it was doing, allowing an interrupt service to take care of this. The result was a "type-ahead" feature, not seen on other contemporary computers; for those, the keyboard was dead until a program specifically asked for input.

Computer input was thought of in those days as a teleprinter device or equivalent. As such, input and output was upper case only; a full ASCII capability was unheard of. Commodore added an upper/lower case facility to the PET. However, the fixation of upper case was such that lower case was "inverted" - that is, you had to shift to get lower case letters. The Radio Shack TRS-80 had no lower case; the Apple II had "slots" or board plug-in positions, where upper/lower case could be added at a later time. The Commodore PET was introduced without peripherals such as a printer or floppy disk; it took almost a year for these devices to appear. But the interface was already in place, and it was an interesting one: The Hewlett-Packard GPIB ("General Purpose Interface Bus"), also known as the IEEE-488 bus. It was possible right from the start to connect to specialized devices, such as sensors, which had already been devised for this bus. When the Commodore disk drive and printers appeared, they would string together off this bus. It was decades before the introduction of the USB ("Universal Serial Bus") would use a similar scheme.

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The use of such a bus called for intelligent peripherals. When the Commodore devices finally appeared, they had their own microcontrollers and logic; in the case of disk drives, that included a sophisticated DOS, which wrote data to disk in a more sophisticated way than other drives of that generation. Although "back end computers" were known in the mainframe environment, their use in the micro world was, to put it mildly, innovative. Meanwhile, competing machines of the era had to have DOS loaded into the main computer.

Commodore somehow had a deal with Microsoft for a perpetual license for Microsoft Basic. I don't know of any other manufacturer who obtained a license, and it gave Commodore a major competitive edge for the entire life of its right-bit products. Microsoft had not at the time achieved major sales, and Bill Gates was complaining loudly and publicly about software piracy. Perhaps Tramiel and Peddle offered a deal that appeared attractive for the time. Microsoft later regretted the deal, and internal memos within Commodore urged employees to disclose no information about Basic, for fear of litigation.

In contrast, Apple initially had only "integer Basic" whose arithmetic was based on 16-bit integers. This gave speed, but limited the usage. The Radio Shack TRS-80 had "tiny Basic", as published in Doctor Dobbs Journal. Eventually, both of them migrated to Microsoft Basic; but royalty payments to Microsoft became a factor in their product pricing.

Even when the competition joined the Microsoft bandwagon, the Commodore version still had an advantage. "Commodore Basic" as it was called, had a 32-bit mantissa, which computer techs will tell me produces about 10 decimal digits of numeric accuracy. Other versions had only a 24-bit mantissa, perhaps to enhance speed; but this will give an accuracy of only about 7 digits, which is not enough for financial work.

XIII. The Growth Of Publications: Newsletters to Newsstands -

A proliferation of magazines and newsletters came with the advance in microcomputer technology.

Like Doctor Dobbs, BYTE magazine arrived early. Its first year contained articles such as how to build your own wire-wrap tool out of a ballpoint refill, and how to punch paper tape so that humans could hold it up to the light and read actual text.

The Commodore world hosted many newsletters. "The PET Paper" was told by Commodore to remove the PET reference, which they viewed as a trademark; it became "The XXX Paper" a title which might raise some eyebrows in this day and age.

Len Lindsay published "The PET Gazette." He became overwhelmed by the volume of material arriving, and public begged for someone to take over the job on his behalf. Robert Lock of Greensboro, North Carolina, did this in autumn of 1979. COMPUTE magazine developed into a major publication; in the late 1960s, it became the largest selling micro-

computer publication of them all. It ceased publication in the late 90s.

"The Transactor" began as a single sheet newsletter issued by Commodore Canada. After a couple of issues, a young fellow called Karl Hildon was hired to keep it going as a customer information vehicle. Hildon built it into a respectable technical journal. When Commodore tired of it, Hildon found another company in the Toronto area willing to continue publication. The Transactor folded in the late 90s, but was considered a major technical source during its lifetime.

XIV. The Toronto PET Users Group (TPUG) -

Shortly after the arrival of the first few PET computers in Toronto, I received a call from Lyman Duggan, who worked for Marconi. He wanted to know why nobody was organizing a user group; I gave him the usual answer. So sometime in 1979, about sixteen interested users gathered in the rec room of Lyman's apartment block, and TPUG - at that time, called Club 2001, after the PET 2001 - was born. Duggan ran TPUG as a private enterprise. He arranged program and location, charged five dollars for attendance, and served coffee and doughnuts. His wife, Cherie, has cassette tapes containing contributed programs which sold for a dollar or two.

Attendance grew rapidly, and Duggan had to seek out ever larger sites for the meetings. Then, with little warning, his employee posted him to Florida. Duggan quickly nominated a board of directors to replace him, and TPUG became a member's club.

The Toronto area had quite a few talented people who could be called upon to make presentations, offer opinions, or disseminate news. Apart from myself, we had Karl Hildon, editor of The Transactor; Brad Templeton, who later went on to become the publisher of Clarion online service; Steve Punter, who wrote the first major word processor package for Commodore, and numerous others. And I have a special affection for the antics of Brett Butler, one of the first PET owners in the Toronto area, who wrote a tiny program for his wife who was in the late stages of pregnancy: tap any key, and the PET would show time elapsed since the previous contraction.

Computer enthusiasts were regarded as mavericks. Few of those who worked in the field of data processing would have any association with microcomputers. I suspect the reasons for this are varied. Perhaps there would be a loss of corporate prestige to admit that those little thousand dollar machines were capable of taking on some tasks, when DP personnel had a million dollar machines as their private domain. It seemed that some users would believe only what IBM told them; and, at that time, IBM had no interest in giving any credibility to these pesky little machines.

There were rebels. A Vice President of Air Canada used a Commodore PET to plan fuel needs at various airports; but he had to hide his machine from the DP mavens, who didn't approve. A regional education officer in northern Ontario

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supported microcomputers in schools, and helped assemble a body of educational software; all the while, the Department of Education wanted all educational flow to be centralized.

TPUG prospered, and its influence went far beyond Ontario's boundaries, or even those of North America. Today, it may be difficult to comprehend the difficulty in distributing free programs across the country or around the world. We use the Internet. Back then, you put cassette tapes in the mail, or, later, floppy disks. And a central clearing point produced better organization. TPUG was it, for many years; most Commodore clubs across North America became associate TPUG members. Membership reached a peak in 1984 of about 17,000 members. TPUG now had a full time staff for handling memberships and mailing requested programs, and another full time staff to publish the TPUG magazine. There was a lot of money flowing into TPUG, and it seemed to me that this caused dissension between members of the executive and the staff.

An early online service, "The Source" opened for business in 1979, and was soon followed by another, CompuServe. A service specific to the Commodore 64, Quantum, became available in 1985. There started to be other ways to distribute programs. And the Internet was coming. Online services, and a shift to other manufacturers' computers, caused a further decline in membership. And this caused disputes to become more pronounced. It's easy to bring in new equipment and new staff in prosperous times; it's not so easy to start cutting back. Many old-timers dropped out of the TPUG picture. But TPUG survived, and is still active today. I'm told that the next World Of Commodore gathering will take place this December.

XV. Product Proliferation -

The original PET 2001 was soon followed by bigger models, with more memory or 80 column screens. Commodore did its best to drop the name PET in favour of CBM, so as to establish a business image. At one time, it even tried to disenfranchise one of its major retail outlets because it thought the name was too frivolous: Batteries included. The outlet set up a subsidiary with a "sensible" name and continued to handle Commodore machines.

Commodore technicians built prototypes of many imaginative machines. One of these, called the TOI, had a colour screen, graphics and sound capability; it eventually became the VIC-20. The 22-column screen of the VIC-20 made it of little utility with text applications, but it worked well with graphics, and became popular as a game machine. The VIC-20 was still a full-feature computer, complete with the Commodore Basic language, and many people used it to learn computer programming.

There's a believable story that, long before, the chip manufacturer Texas Instruments had cost Commodore and Jack Tramiel a great deal of money on plans he had made for a calculator. The story continues that Tramiel swore revenge; and when Texas Instruments came out with a computer of

their own, the TI-99, he launched an economic war. Whatever the truth of the story, it's true that Tramiel was very good at pruning prices, pressing suppliers to drop costs in order to allow him to pitch extremely competitive retail prices. And with his next product, the Commodore 64, he trashed most of the competition - including Texas Instruments.

At one point, Commodore was offering \$100 as a trade-in for any make or model of computer. Since the Sinclair/Time Spectrum was selling for about \$60 at that time, Commodore received a considerable number of these units, still in their shrink wrap packaging. The local user group told me that Commodore had no use for these trade-ins, and they went directly to the trash bin. At night, members of the club would pick these back out of the trash and turn them back in the next day for another discount.

Doctor Wesley Graham, of the Computer Science department of Waterloo University, thought that the CBM computers could be expanded and modified so as to allow students to take language training on them. Waterloo was already noted for its "training" languages, such as WatFor, a training dialogue of Fortran. Together with hardware assistance from BMB Compuscience, a retailer and hardware designer in the Milton area, they devised "The SuperPET" a machine with dual processors. One "side" was a standard CBM computer; the other was a Motorola 6809-based system fitted with several languages. Perhaps the most startling of these was APL ("A Programming Language"), developed by Ken Iverson, which used a completely different character set to undertake its computations.

The SuperPET was well respected and used in training environments, but never became a mainstream machine. I often wondered if adding language compilers - in addition to the interpreters that Waterloo had furnished - might make it world-beating commercial machine.

XVI. Fun Computers Hit Their Zenith -

Following the success of the 64, Commodore tackled the objective of making a set of scaled down computers: the Commodore Plus/4 and its smaller cousin, the Commodore 16. I had some involvement in this product: I was invited to introduce it at the Consumer Electronics Show in Las Vegas, 1984.

Inside the Plus/4 and Commodore 16 was ... almost ... nothing. The various support chips that had been needed to make things work had been telescoped into a single interface chip called TED. So there was TED, the processor, and on the Plus/4, an ACIA chip (similar to a UART) for higher speed communications. Manufacturing costs must have been remarkable low for a computer with so few parts. But before the show, the marketing mavens told me they planned to set the price so high that it wouldn't impact sales of the Commodore 64. They succeeded beyond their wildest dreams; the Plus/4 and its smaller cousin bombed in the market.

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They gave up on this new line, reasoning that the marketplace required compatibility. Their next product was the Commodore 128, which was highly compatible - a switch converted it into a 64 clone - but could be switched into CP/M mode for anyone who wanted that style of compatibility. On the "business computer" side, Commodore meddled with expanded memory. In Europe, they tried new cast stylings, and at one point almost introduced "The Porsche PET" whose case had been designed by the Porsche team.

Then they tried another approach to higher speed and more memory. The B128 and B256 computers were built, but Commodore couldn't get them going on schedule. Eventually, they were made to work, but it was too late for the marketplace, and Commodore blew them out their back door using a clearinghouse. It worked well, and many users loved them; but it was a Commodore ex-product, and Commodore didn't make them anymore.

It was becoming clear that Commodore was reaching a dead end in the 8-bit world. Commodore acquired the Amiga, originally planned as a game machine, and reconfigured it for a business/entertainment market. But that's another story, and this presentation is following the fate of the Commodore 8-bit world.

XVII. Arrival Of The IBM PC -

When the IBM PC was announced in August 1981, Commodore users couldn't believe that anyone would try to sell a machine that was so underpowered and overpriced. \$3,000 for a little machine with 16K of RAM, expandable to 32K, black-and-white only, disk drive extra? And their first floppy disk drives could store only 160K of data, where Commodore drives ranged up to 1.2 megabytes in capacity. And powered by an Intel 8088, it wasn't exactly a 16-bit machine; just part 16 and part 8.

But the name IBM had credibility, and it sold well, beyond IBM's expectation. At one point, I told Commodore that their mistake was in picking the wrong first letter for their initials; change the "C" to an "I" and they'd be in business. IBM made frequent upgrades to their product line - from PC to XT to AT. The machines became truly 16-bit were fitted with formidable memory and improved disk drives. At each new product announcement, to IBM's astonishment, the new unit quickly sold its initial production, and then sales dropped of radically. If it was off the shelf, users didn't want it; they always wanted the next generation.

All other brands of small computer were seriously impacted. to our surprise, people would buy these expensive machines, borrow software from their place of business, and set up these machines in their homes. PC users groups expanded at a startling rate. And when, in 1983, Compaq and others broke the IBM stranglehold on the PC design, prices dropped and sales exploded. By that time, the PC architecture clearly outperformed the 8-bit computers in raw computer power, although they still performed poorly in the graphics and games area.

Commodore introduced its own line of PC-compatibles in 1987. These sold well in Europe and reasonably well in Canada. The US market was never penetrated to any significant extent, and the ceased production in 1993 ...

Oh, and just to prove that IBM isn't perfect; their scaled-down PC Junior failed miserably.

XVIII. The Commodore Empire Disintegrates -

Commodore had run out of steam on the 8-bit track and were concentrating all their efforts on the Amiga. It wasn't enough, and Commodore as we knew it broke up in April of 1994. Commodore was gone, but the name stayed. It was sold and resold to a number of organizations, most of whom were in Europe where the name was viewed favourably by consumers.

XIX. Follow On: Loyalties Remain-

Magazines scaled down and ceased publication. Users groups dwindled. But loyalties remain. Many users haunt thrift stores for old Commodore computers and spare parts. There are continuing rumours that both the Commodore computers and the Amiga will reborn in some form of other. Meanwhile, "64 emulators" can be run on a PC which closely match the behaviour of the original machine. It's not the same, of course; part of the joy was the things you could hook up to the machine.

Small users groups still gather in Canada and the USA. In mid-May, there will be a gathering in Louisville, Kentucky. In September, I expect that there will be something in the Chicago area. There has been talk of something in Las Vegas this year. And TPUG tells me that the World Of Commodore will take place one again in Toronto sometime in early December.

Here's a story of dedication and loyalty. Back in the Commodore heyday, a young girl loved her Commodore 64 so much and was so curious about its inner workings, that she destroyed quite a few of them in trying to find out how it works. She was determined that someday, she would construct a Commodore 64.

Her name is Jeri Ellsworth, and she did it. She built a complete Commodore 64 on a chip: processor, video, sound, operating system ... the whole works. Her most recent creation is the 64DTV, a Commodore 64 on a tiny chip buried inside a joystick, including about 30 games of the era. Without a keyboard, it's hard to program, but it can be done. Without a disk interface, it's hard to store or load other programs - but a good hardware hacker can construct one, and some have done so. It's quite a feat. And it makes me think that perhaps the Commodore 64 will live forever.

COMMODORE FREE INTERVIEW WITH SCOTT HUNTER CREATOR OF THE COMMODORE PI

<http://www.commodorepi.co.nr/>

The goal of the Commodore Pi project is to develop a native Commodore 64 emulator and operating system for the Raspberry Pi hardware, with the following features

- Fast boot up time - nearly instant on
- Output to HDMI and composite video sources
- GPIO pin connection to external devices (hooks via the kernel code)
- Ethernet connection
- USB Connections
- Access to the full RAM of the Pi possibly via bank switching
- Multitasking by means of multiple emulation cores
- Modern graphics modes

Think of the project as a Commodore 64 operating system. It is based on the Comeback64 emulator. The goal will be to include all of the expected emulation features such as SID sound, sprites, joystick connectivity, REU access, etc. In time, even the emulation speed could be changed, as well as additional modern graphics modes

Q. It's always customary in Commodore Free to introduce yourself; so can you perform the honours please

Thanks. My name is Scott Hutter and I am a software engineer in Nashville, Tennessee. My first computer was a VIC-20 I bought for \$100 back in 198-something. Then as many of us did, I went up to a 64, then a 128. At this point, I have a collection of VICs, a flat 128, a 128D, an SX-64, some Plus4s, a C16, and an A2000. Too much!

Q. what when and Why did you become involved with Commodore Computers, and is it just a love of Commodore machines or are you just a Retro fan in general

I love the simplicity of the older machines. Today's hardware is so complex that few are really interested in hacking away at their machines. And nearly every operating system today is either Microsoft or *-nix based. "Think Different" to me, is a READY. prompt with a blinking cursor.

Q. So is The Commodore Pi some code that will turn your Raspberry Pi into a Commodore 64, can you first explain what is the Raspberry Pi and what is the Commodore Pi

The Raspberry Pi is a credit-card sized full computer "System On a Chip" which is being developed by the Raspberry Pi Foundation with a goal of mass producing extremely low cost computers for education. They are low powered, self-contained ARM-based computers featuring HDMI and composite video, audio, and two USB ports. The Commodore Pi project's goal is to run an emulation of a Commodore 64 (and in time, other CBM machines) natively. I have never

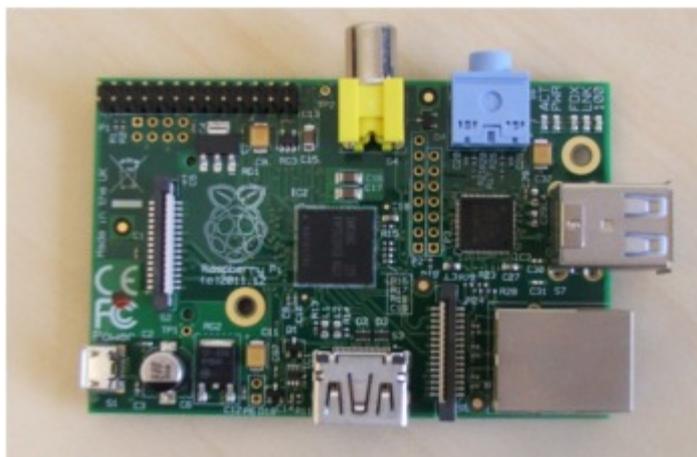
been satisfied with emulators. Given the speed of modern computers, I see no reason that an emulator cannot be an operating system kernel in its own right. The hardware was only part of the equation back then - the software made the machine as well. So I see no reason to ditch the software just because the hardware has aged. With this project, it is conceivable to have a Commodore 64 running 512MB of RAM (using bank switching techniques), access to the GPIO ports, stereo sound, multitasking, etc. Newer versions of the Commodore kernel could be written to allow the system to use the newer hardware. And we aren't limited to just the Raspberry Pi... an OS based on emulation could run on any platform.

Q. You mention the code is based on comback64 emulator how much of this code is from the emulator and how much is bespoke IE coded by yourself

Admittedly, I am not an emulation guru and can take no credit of the emulation. I had worked on a similar project a few years ago (<http://cbm11.codeplex.com>) which emulates just the 6502 CPU as an operating system. Comeback64 had very readable source code in C. After learning how the Raspberry Pi manages its frame buffer, I went straight to work writing library functions for the graphics code. Honestly, the most frustrating part is speed/timing and the USB ports of the Raspberry Pi. Given the thoroughness of the famous VICE emulator, it my desire to swap out Comeback64 and use VICE instead as the core OS.

Q. How complicated is the software to get running, Do you just download it to an SD card and boot the card? When booted does it just look like a real machine starting up

Getting it working is very easy. When you purchase a Raspberry Pi, you can also get (or download) an SD card with a Raspbian (Linux) OS. You need only copy the kernel.img file from my distribution over the existing one. There is also a



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config.txt file that you will replace so that the machine defaults to 320x200 on the card. It will then boot up straight to a Commodore 64. I have only tested it on a composite video connection.



Q. How long and how much time and effort was it to get the project to a state where it would boot and accept input from the user

It took me about a month to get things in a semi-working state. I can tell you it was very cool the very first time it booted up and I could make out the Commodore 64 startup screen. Colour wasn't working correctly at the time, there were no borders, and the picture was very...off. But I could make out the screen. Very exciting! Keyboard input was another painful process because of the USB input. USB is notoriously complex, and so I used a library which is known to be minimal and have some issues. Rather than correctly handle input via the emulated CIA chip, I am currently just injecting the values directly into the keyboard buffer.

Q. Why create this project what was wrong with just running an emulator



There are a few answers to this question:

1) An emulator reduces some of the parity between the hardware and the software. If you have used an emulator for game consoles like the N64 or Super Nintendo, you know that there is a different "feel" because your input controllers must be mapped properly. It isn't portable from

one machine to another unless the second machine has the exact same hardware configuration.

2) The architecture of modern systems has become so big and difficult to understand that fewer people get involved with assembly language and systems programming. The 6502 (and 6510 variant) was an incredibly simple CPU to work with. Based on the software and hardware hacks being developed, there is still great interest in this chip. The only place people have to go to continue working with this chip is on older hardware. I want to change that. As fast as modern machines are, we can emulate older machines at the OS level, providing a new generation an opportunity to work with the amazing hardware that we worked with. You won't find anyone teaching x86 assembly to high-school students because it's just too confusing. But they could teach simple 6502 assembly using off the shelf modern hardware.

3) Today's operating systems are not really meant for education. I learned programming on a VIC-20 because I didn't have a GUI with 100 things going on at once, or massive libraries and APIs. All I had was a READY prompt. I was seven years old. How many seven year olds can program today's computers under modern operating systems? By developing an operating system out of an emulator, the software lives on, as does the spirit of education.

4) When we think of the Commodore machines, we generally don't separate the hardware from the software. I think this is a mistake which has prevented us from carrying forward the elements which made working with these machines so great. The lifespan of the hardware is limited, but the software can live on.

Q. You mention in the goals of the project that speed could be improved could for example the CMD SCPU be emulated by the software, also could the CMD range of storage devices be emulated

The possibilities of this project go well beyond C64 emulation. Many folks have developed CBM hardware add-ons to provide access to SD cards, Ethernet, floppy and hard drives, etc. Inherently, this project provides that capability "out of the box" because the hardware is emulated and hooks can be created which capture requests to modern hardware. A simple demonstration of this would be mapping some unused memory locations to the GPIO (General Purpose IO) pins on the Raspberry Pi. Then with simple POKE commands, we could talk to other hardware such as



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Arduinos....or even native Commodore hardware like a 1541. The Raspberry Pi has 512MB of RAM - quite a bit more than the 64k of the C64. Accessing the additional RAM could be as easy as POKEing to an in-memory "MMU", which swaps out portions of the emulated RAM, similar to the C128's bank switching technique.

Q. Speaking about The other goals the do sound quite advanced with things listed like USB connections and modern graphics mode, with these implementations will you break the commodore 64 backward compatibility for older software

The goal is to retain compatibility to be sure. I believe there are ways to provide additional features without sacrificing most of that compatibility. Adding new video modes which rely on bank switched memory, in theory, should not affect compatibility. Talking to modern hardware via either unused locations or alternate memory banks should also maintain that compatibility. Also, In the past, it wasn't very feasible to update the kernal ROM because people were not generally comfortable opening their machines and replacing a chip. But via software, we can actually improve on the ROM.

Q. How would someone load applications into this environment, if current programming permits this and to what extent is the project complete

Right now, there is no file system. The goal would be to include a FAT file system which would allow access to the SD card. Kernel traps would be enabled to catch BASIC commands which talk to the IEC serial bus. As you can see, this is one area where compatibility is a problem, unless you are connected to real Commodore hardware. The current state of the project is really a proof of concept to hopefully generate some interest in bringing back the 64 and 128 as operating systems.

Q. What current problems are you experiencing with trying to improve the system?

Just about everything. Without a file system, it is difficult to test the system in any meaningful way. But before that, speed and timing needs work. And before that, I think we need to switch to the VICE emulation core as it is a proven emulation which is actively maintained. Some of those guys have expressed support of this project and have been very helpful in providing some ideas. Imagine booting VICE up as an operating system on an old Celeron or dual core x86. Who needs Windows when you can run GEOS at modern CPU speeds!

Q. What help do you need and how can someone who feels they have the skills contact you?

My email is scott.hutter@gmail.com and I welcome hearing from anyone who has experience working with VICE ports, emulation in general, knowledge of the Raspberry Pi system, or general operating system development. It's quite an interesting skillset combination. And of course you would have to share in the vision. I think there are many out there who miss "the good old days".... I'm saying: let's not toss out the baby with the bathwater - the 'good old days' need not go away just because Commodore is gone and the hardware

has aged. Amiga continues to live on with 4.x of their operating system despite the end of life of the hardware.

Q. Do you plan other systems like the Pet, Vic, or...

Yes! VICE has combined all of these systems into a single project, and so I'm convinced that the same could be done with an emulated operating system. When your C128 dies, you don't need to scour eBay for one - you can pick up an Raspberry Pi, and run the 128 OS. If you want to play some C64 games, run the 64 OS. If you want to tinker with TED without fear of it burning up on you, run the +4 OS. In fact, all of these systems could be built into the same kernel. A POKE (or STA) to a memory location would switch you to a different machine architecture.

Thank you for your questions. I hope that I have sparked some interest to the readers of Commodore Free. I look forward to hearing from you, and thank you to the folks at Commodore Free for keeping us all informed!

Thanks
Scott Hutter

"THE...SYSTEM...IS...DOWN"

A story by Commodore Free

"The clerk" who was slightly overweight and still hung over from the free late lunch and awards ceremony last night, looks down at the keyboard; his face bathed in the green light from the terminal that he uses daily, although; as is the case in most departments; cutbacks have meant that they have taken some of the bulbs out on alternate florescent lighting tubes. This was in the misguided conception that the process would save thousands from the budget. Next to his desk was a pile of papers printed on one side, they had all been asked to use the other sides for scrap paper and note taking; how much has this saved every year is a guess but someone somewhere had earned a bonus for the suggestion.

The clerk's room is also cold, the radiator hasn't been on for a number of years, that's why most people who come into the office wear a long coat; they know just how cold the office is. Most of the other staff even sat working in a coat; their breath vapour can be seen in the cold office air going upwards as they speak to each other. The clerk and the others in the office often feel it would be better for them to sit in the car park, at least the sun would warm their faces and it would be lighter than in the dark stuffy offices.

The clerk looks up at the light and curses to himself, he then looks over at the radiator and mutters under his breath about the cold; he stares at the papers on his desk and the notes he has taken on the other side; unable to read them as the ink from the paper has soaked through both sides of the paper making the other side really useless for anything other than the bin. He wishes he had the idea for himself and remembers the rumour that Jamerson in the next office had the idea and won a 2k bonus; he wonders if they will ever make that money back from using 2 sides of the page then dismisses the whole thing as he remembers his terminal. He then peers down at the keys, on the terminal that are lit with the same green electronic eerie lighting from the terminal screen. He seems worried; almost concerned; but he hasn't seen anything like this before; not in his entire career. The clerk isn't a fan of technology and remembers a simpler time when everything was hand written if you needed to find some information you went to the archives; not now, everything is supposed to be more reliable faster and as the other ministers say "more with it" He glared at the screen and pulled down his glasses; not that he could see better as without them he was blind as a bat. No, he hadn't seen this kind of error message before, it's not he thought to himself. Then pausing in his own fear and shuddering, not from the cold but the thought that the system was about to fail. He remembered something about this kind of error when the whole thing was implemented; darn this infernal machine he thought.

The screen displayed error message after error; and all of them rolling up the screen, the little tiny green lines of error messages dancing in front of his eyes as they rolled up the

screen then disappearing off the top as the next error was printed on the bottom of the screen, then another then another each green word seemingly pulsing almost mesmerising with hypnotic regularity and the clerk pushing his face towards the screen, to better focus on what the message says, fumbles in his pants pocket for a mobile phone.

He dials the number for these sorts of problems and reads out the messages from the screen. Silence falls on the other end of the phone then he shouts "I say, can you hear me? are you there?, , come on man; what should I do?" the phone line suddenly blurts into life, the person at the other end stuttering and stammering, he asks the question that the clerk was dreading "does he know" the question is of course aimed at the prime minister, the clerk's immediate boss and in this case he does know; he knows because he too, is also staring at the same green screen but he sat in his own office, and tapping on the keyboard in the vain hope the error message would somehow stop, but as he hasn't seen this error before he decides to ignore the message and leave it to the people who know about these things, after all it's not like they haven't had error messages before now; and why should he try to resolve the problem; heck he pays his staff enough they should fix these things before he sees them he thought to himself. He thinks to himself again and suggests to himself "after all isn't that what I employ and pay them for, he muses about his staff the question and then mutters under his breath about having more things to worry about, more important and time pressured things.

The clerk on the other hand is very worried, he stammers down the phone in an as authoritative voice as possible, "look my good man; we need the system back online" the person on the other end of the phone line nods and then says "it's, it's, it's nothing I have seen before and it will mean we need to restart the system" The clerk hasn't heard this said before, he asks the man, "is everything down then" the phone line springs back to life and the words "everything is down" comes over the line. The clerk nervously asks "but it is fixable isn't it" the caller on the other end of the phone just says "we haven't had this happen before" the clerk hangs up, his head is bowed down into his hands as he leans forward further and further until his hands hit the keyboard and the machine issues a worrying "BEEP" the clerk jumps into a standing position and rushes in to see the prime minister.

"The system is down" says the clerk. The prime minister looks up from his notes, his face puzzled at first by the intrusion from the clerk. He thinks to himself, "Doesn't this man know I have things to do" he almost issues a cautionary word to the clerk and then stops, he decodes the words again but in slow motion in his mind "THE...SYSTEM...IS...DOWN" he jumps up suddenly comprehending the enormity of the problem and stands at his desk in attention, he stares at the clerk making him feel uneasy and start to sweat. The clerk

"THE...SYSTEM...IS...DOWN"

A story by Commodore Free

unable to move and feeling transfixed to the spot swallows hard and then in a slightly higher pitched voice than he usually speaks and with beads of sweat running down his head utters the words "hhhhuuuummmmm sssshhould IIIIII ggo down to the dep ppartment" he then pauses and swallows hard, the Prime minister breaks his gaze and looks around the room, the room is full of pictures of various notable people in Victorian style clothing, the room itself is oak panelled from floor to ceiling, and with very little light except mainly from the chandelier in the centre of the room and the sharp beads of light coming from the sides of a large window covered almost entirely with dark heavy curtains. The prime minister looks around, he thinks to himself "what would I do without all this" he looks at the clerk and smiles calmly, he says "yes please go to the department" the clerk feeling uneasy at his calm and self-assurance he starts to speak but no words come from his mouth, the prime minister looks at him and puts a hand on his shoulder and then says "and thank you for your help" the clerk realizing the distress and the sense of occasion just turns and heads down past the rows of pictures and towards the large heavy door, he turns looks at the prime minister then quickly and quietly closes the door behind him.

Still in the room and alone the prime minister drops to his knees head in his hands and begins to shout "why? why?" his cries are not heard through the heavy door and walls, the sound is echoed around the room, meeting itself coming back and reverberating into every piece of art in the room. The minister sinks further and further down and begins to rock, he thinks to himself that as this is the first time the "system has crashed" and that it could mean the end of civilization as we know it, it is also the end of his very short career as a politician. He was and is he thought to himself a very well-liked man, wouldn't the people understand, it's all the cutbacks you see, how could the system be continually upgraded when they always needed to make such cutbacks. The system had run unattended for more years than anyone could imagine, and although each government blamed the other because they hadn't upgraded the aging system, but then it hadn't ever suffered from a failure so why on earth would they ever replace something that "just worked" wasn't it better to leave the system as it was, why change it to something that may not work. Anyway the governments before had procedures and protocols in place for such an event "shudder the thought" but as time passed the protocols had been unrehearsed and only the slightest details of the procedure had been passed from generation to generation, so could this be the final straw that would break the camel's back. Time was not something the governments now had, the system need to be back online and fast.

The clerk began to run, he realised the enormity of the problem, every second the system was down meant thousands of pounds was being knocked off the government economy, every man, woman, and child would start to struggle, the water would stop flowing, the reservoirs would keep filling, nothing was immune as every year more and more was applied to an ageing system, that really no one had ever seen (thought the clerk) in fact he thought, I don't remember a

single person who is still working here when the system was implemented, and if I remember (he thought to himself) the whole installation was in secret!

The clerk soon reached as he put it "the department" the department was as some call it the It systems although it did have an official name that was a little more official, but everyone just called it "the department" I don't think even the people who worked in the department remembered what it was really called.

The clerk approached a long table where a woman sat filing her nails, he was out of breath and himself a little overweight and of course very unfit from all the free food presented by various people as good will gestures (most people would think these were bribes) however each meal was a gesture towards the government and a thank you for the efforts of being fair (so people would say) the clerk now gasping for breath opened his mouth and said "Morgan" the woman looked up shocked at his outburst but realising who he was, picked up the phone and began to issue a paged call to the whole department. "MR. MORGAN TO THE DESK", of course Morgan was well aware of the failure being in charge of the department and having a military style operation that hadn't had a single problem for a number of years, he was known as Mr. Clockwork because of his ruthless efficiency, and he came over to the desk calmly and looked at the clerk. He asked the clerk "do you have the key?" The clerk nodding held out his hand with golden key therein and then clenched his hand around it.

The system needed 3 keys and a pass code to enter, this hadn't been used in a number of years as the system always ran with ruthless efficiency, although even Mr. Morgan would be the first to admit he didn't really know what the protocol was. He felt in his pocket and clenched his hand around the 2nd key, he racked his brains and then remembered he needed the 3rd key from the colonel to open the door, he thought for a moment and then pondered on the password, could he remember it... Ahh he thought, it's in 3 parts as well. That the clerk has to enter his part, then mine, then the colonel's, he put his hand down into his very tight fitting expensive black suit and magically pulled out a phone with some extra showmanship that wasn't called for but added an air of mystery to his job that to be quite honest he didn't know exactly what it entailed but as no one had challenged him and he could as they say "talk the talk" and the fact all the politicians knew nothing about the system anything that sounded vaguely plausible wrapped up in techno babble was as they say wool over their eyes, although they didn't know it or wouldn't admit to it

Walking in large strides almost like a ministry of silly walks, Mr. Morgan in front and the clerk behind Morgan spoke into the phone "colonel old man we need the key, its..." he paused and thought of something that didn't seem like it was his problem then he uttered "it must be some sort of power problem, the system has become unstable" the colonel could be heard laughing in the phone piece he was hysterical and said "I told you it would crash, Morgan you old conman, what have you done" Morgan pushed the phone to his ear so the sounds of the colonel couldn't be heard and

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then looked at the clerk, he then said "bring the key, that's an order" the colonel went quiet and then aggressed, he picked up his key *(that he is supposed to carry at all times) from his locker and ran to the room, "the room" was liken to a bank vault, with thick steel walls and a thick door the clerk put in his key, then Morgan his, and finally the colonel put in his key they all turned their respective keys at once to the right "CLICK" the lock went, then the clerk entered his part of the password followed by Morgan and finally the colonel, they turned their respective keys again to the right a final time "click, clonk" went the lock and the door began to open, All three men pulled and went inside, Morgan pushed to the front as he hadn't seen the system, well to be honest ever, he looked at the screen and saw it had some text written on it

SYNTAX ERROR IN LINE 1

He looked down at the machine and on the sticker it said COMMODORE 64, this was the system an 8 bit computer, he shook his head and said "this was the system", all three men looked at the machine then each other, then the colonel

flicked off the power switch and then back on, the machine sprung into life and after a second had the word READY on screen

He looked at Mr Morgan and then at the machine, now what he said to Morgan, Morgan looked at the colonel then said "oh"

BY

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