



Cincinnati Commodore Computer Club



July 16, 2000

President's page

Rampantly Rambling Ruminations

Howdy Fellow Commodore Users!

This month's meeting is almost upon us, I knew the time would be flying fast. For the few of us that did show up for last month's meeting, we did have some interesting discussions about future activities for our club.

Since the turnout was so small, it was decided that we would not participate in the July Tradeshow Productions Computer Show at the last Saturday in July. I know I'll show up there as a consumer rather than as a dealer, that will be a first in a long time. We decided to table the discussion for the following computer show. If you can volunteer for that show, let the officers know. Since I will be doing inventory at my work place that weekend, I will not be able to be there.

Now for some Commodore News! I have received the latest version of The Wave from Maurice Randall. This latest incarnation will actually surf the world wide web! Not everything is fully implemented on this beta release, however. The graphics are still not implemented. It is a pleasure to be able to surf the web without the aid of a shell account, and a lynx compatible server (So I've heard from the fellow Beta-Testers).

Unfortunately, I have yet to see this version on my system. The day I received the files from Maurice, my SuperCPU had a hardware failure, along with the 128D, and Ramlink! Seems crazy that all of those had issues at the same time. The Ramlink is something I was able to take care of relatively easily. The 128D I'm not sure exactly what's going on, it seems to not recognize most cartridges, including game cartridges. As most of you

are aware, the SuperCPU and Ramlink are connected to this interface. Fortunately, my 64C stepped in to the plate to get Wheels up and running. At this point, I found out that the switch of the SuperCPU was broken, and stuck in the disabled mode. Without the SuperCPU enabled, I am unable to run the Wave. AAAAAARRRRRRGGGGGHHHH!!!!

Consequently, there will not be a demo of this version, but probably a future version will be demoed in the near future (keeping fingers crossed). A phone call to Creative Micro Designs set up my SCPU to get on it's way to getting repaired.

Many of you know I have been a member of the online service CompuServe for many years. Effective the end of July, I will be discontinuing my membership with that service. Earlier this month, I found out from the Vintage Computing Forum, that one can view the forums at CompuServe for free. Wanting to find it out for myself, I did some experimenting. Yes, it does in fact work, but it only seems to work with Netscape Navigator (is that a surprise?). I'm not sure if this is a good thing or a bad thing, but it would seem, that CompuServe has taken the idea from Delphi (Delphi also has free web based access of their forums). Why they are doing this is unknown, but only the higher ups at AOL/CompuServe know what's behind this move.

I'll be on Vacation this month from July 9-22 but I will be in town for the meeting on July 16th. I'll see you there, and keep Commodoring!

David Witmer AKA Snogpitch
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<http://www.geocities.com/c64-128-amiga/>

The 4 C'r



(last updated 9 October 1999 - Changes appear with a | in the left column.)

The Find-It FAQ: Where can I download stuff for my C = emulator from?

This is Paul Irvine's original FAQ on finding Commodore stuff on the Net for download. In his inimitable words:

"Are you looking for a C64 game or Utility, then look no further. This list covers most of the well known sites on the NET, If you cannot find it on these sites then its a very rare game. Only *then* ask in the Newsgroup for it...."

So, please, read this first! It's short and comprehensive. Thanks also to Ben Castricum and Kai Spitzley.

The FAQ is also currently downloadable from Jim Brain's site (though he has had trouble of late):

ftp://ftp.jbrain.com/pub/cbm/faq/cbm-game-ftp-list.txt ???
ftp://ftp.jbrain.com/pub/cbm/faq/cbm-game-ftp-list.MM.YY.txt

and from Kai's:

http://www.heechee.net/c64/cbm-game-ftp-list.txt

Contact me if you have a site for addition here. In assent to Paul's original and very selective standards, banner-ridden pages will not be included!

Important legal note

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Because I know what lawyers like to do on weekends:

"Please respect the property considerations of games available for download. The general rule of thumb is, download it only if you own it."

Many generous companies have also made their old titles available free. These anyone may download and play. There is a special section for them here -- please take advantage of them and send them a note of thanks so that other companies might do the same! Also consider investigating the list of freeware sites, which, while not offered by the original authors or were commercial releases, are also free for the download.

Games also appear from time to time in comp.binaries.cbm. These games, too, are always freely downloadable and distributable.

FTP C64 game archives

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ftp://arnold.c64.org/pub/games

Arnold is the *main* repository for C64 games. Almost everything is there.

ftp://mursac.marshall.edu/sys/pub/c64/Games
ftp://ftp.ludd.luth.se/pub/c64/games/old
ftp://ftp.armory.com/pub/user/spectre/D64-FORMAT
ftp://utopia.hacktic.nl/pub/c64/Scene/Old/
ftp://kwed.org/pub/kwed/triangle

HTTP C64 game archives

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http://home9.inet.tele.dk/jez JEZ' page: rare

games and unusual titles.
<http://www.comadorezone.com/>
Commodore Zone: highly recommended.
.TAPS here as well. <http://cia.c64.org/> Ben
Castricum's archive: .taps, .sids, games, .crt
files.
[http://stekt.oulu.fi/~mysti/the_sharks/Files/G
ames/Tested Sharks page](http://stekt.oulu.fi/~mysti/the_sharks/Files/Games/Tested%20Sharks%20page)
<http://ltd.simplenet.com/c64/games> Laner's
Lost & Found page
<http://www.cs.uiowa.edu/~femook/c64.html>
The almighty C64 - nice page for starters,
some unusual titles
[http://www.poli.studenti.to.it/ftp/pub/c64/gam
es/](http://www.poli.studenti.to.it/ftp/pub/c64/games/) Needs a "ticket" to enter the site -- free,
but a bit irksome
[http://www.geocities.com/SiliconValley/Hills/2
096/](http://www.geocities.com/SiliconValley/Hills/2096/) <http://come.to/Commodore/>
Commodore 64 Dungeon
<http://www.uni-mb.si/~uel024r1a/c64.html>
CIS's C64 page <http://kwed.org/triangle/> The
Triangle page
<http://huizen.nhkanaal.nl/~blast/> Blast
Archive <http://www.c64.com/> Well, duh. :-)
<http://www.uni-mb.si/~uel024r1a/c64.html>
<http://www.scs-trc.net/>
[http://www.geocities.com/TimesSquare/Arena/
1883/c64/](http://www.geocities.com/TimesSquare/Arena/1883/c64/) Easy download of game
collections & links
<http://skyscraper.fortunecity.com/crypt/438/>
Concentrates on british companies and titles

Mirrors (Duplicates of a site at an alternative
address to the above)
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<ftp://ftp.replay.com/pub/c64>
<ftp://ftp.scs-trc.com/pub/c64>
<ftp://ftp.utopia.hacktic.nl/pub/c64> Digital
Dungeon mirrors

Author Freeware Sites
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You can download software for free from
these pages, and play them legally even if you
don't own the original game. Please do so!

http://www.beam.com.au/play_games.html
Beam Software (Melbourne House)

<http://www.cix.co.uk/~ibell/elite/> (might be
done at the moment) Ian Bell (Elite)

<http://www.magicnet.net/~yak/linx.htm> Jeff
Minter and Llamasoft

<http://www.pcii.net/~msadams/advent.htm>
Scott Adams

[ftp://ftp.nvg.unit.no/pub/sinclair/snaps/games/
by-company/vortex/vtx_c64.zip](ftp://ftp.nvg.unit.no/pub/sinclair/snaps/games/by-company/vortex/vtx_c64.zip) Vortex (just
one game currently). Yes, it's a Speccy site,
but the game is truly in C64 format.

<http://www.iceonline.com/kris/old/fred.html>
Kris Hatlelid (Frantic Freddie)

Freeware/Public Domain Games and Previews
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These games/previews are free for the
download. So try them!

<http://www.wire.c64.org> Brendan Reid's site
-- freely downloadable previews/PD

Utils and Tools =====

<http://www.fairlight.to/tools/main.html>
<http://arnold.c64.org/~minstrel/> Various .tap
and .cart utils
[ftp://ftp.armory.com/pub/user/spectre/UTIL-C
64](ftp://ftp.armory.com/pub/user/spectre/UTIL-C64)
[ftp://ftp.armory.com/pub/user/spectre/EMUL-
UTIL](ftp://ftp.armory.com/pub/user/spectre/EMUL-UTIL) | <http://www.c64classics.com> | Home
of both the Quick64! and Gamebase64
shell-extension/front-end

.TAP Sites = = = = = (also see Commodore Zone)

<http://members.tripod.com/~rstorer/c64/index.html> Games and Utils
<http://www.computerbrains.com/c64rawtapes.html>
<http://members.tripod.com/~twitek/index.html>

Search Engines = = = = =

<http://www.c64.org/~mepk/cfs.html>
Commodore FTP search -- search multiple FTP indexes by filename
<http://tomten.C64.org/hv2.html> Excellent .sid finder utility <http://www.c64.org/sidfind/>

Emulator sites = = = = =

PC64 download sites aren't listed here because it is no longer supported. Use one of these fine emulators instead.

(\$\$) = shareware, (F) = freeware

<http://www.fatal-design.com/ccs64/> CCS64 (Windows, DOS, \$\$)
<http://www.computerbrains.com/CCS64> BETA editions (Windows, DOS, \$\$) -- free for download but use at your own risk

<http://www.phs-edv.de> C64S (DOS, \$\$)
<http://www.cs.cmu.edu/~dsladic/vice/vice.html> VICE (Windows, Unix, DOS, RISC/OS) (F)
<http://www.uni-mainz.de/~bauec002/FRMain.html> Frodo (Mac, Amiga, RISC/OS, BeOS, Unix, Windows) (F, Mac \$\$)
<http://www.auto.tuwien.ac.at/~rlieger/Power64/Power64.html> Power64 (Mac, \$\$)
<http://www.magic64.de/> MagiC64 (Amiga, \$\$)

SID players and tunes

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<http://www.geocities.com/SiliconValley/Lakes/5147/> Sidplay Home + links
<http://www.hvsc.c64.org/> HVSids Collection
<ftp://arnold.c64.org/sidmusic>
<ftp://arnold.c64.org/sidmusic/nemesids> Amiga collections

Gamers Guide disk mag

= = = = =

ftp://ftp.scs-trc.net/pub/c64/Magazines/Gamers_Guide/

Game Tribute Sites

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<http://come.to/lastninja> Kai's ultimate tribute to Last Ninja
<http://www.student.nada.kth.se/~d93-alo/c64/links.html> Many links here

Just for fun = = = = =

<http://www.heechee.net/c64/gallery/> See the mugs of all those weird people on c.e.c

We'll give Paul the last word:

"This list is endorsed and was compiled by the comp.emulators.cbm folk. A big thank you to all involved and keep me up to date with new good sites :) BUT Please do NOT send sites stuffed full of Banners as these are costly and annoying!!!"



Ed note: Few of you may actually try this, but it may be nice to know it can be done.

Unfortunately I have lost the author's name.

How to connect PC 1.44Mb floppy-diskette drive to oldie C64

Introduction story I will describe one of the hardest way for connecting PC and C64. What did I needed that for: well because I didn't have PC at that time (1996) and to pass one of exams I have to make program in C (numerical analysis: solving integrals and differential equations on PC). We have laboratory with computers at faculty but I was unable to concentrate to write my program because this lab was always crowded with students (it was only lab with computers then). Back home I have had C64 and the plan was simple: write program at home on C64 as ASCII text then somehow transport it to PC computer and compile it using Turbo C. Simple isn't it? Simplest way to accomplish that transfer is to use ordinary floppy diskette (3.5 inch: I didn't have 5.25 disk drive for Commodore), connect somehow floppy drive to C64, store my program on diskette and everything else is easy. So I have used standard floppy diskette drive (FDD) which uses a standard 1.44Mb diskettes. C64 computer is too slow for working with FDD which uses data transfer rate of 500Kb/sec. Because of that I have applied a DMA (Direct memory access) type of data transfer which demands additional electrical circuits. Also I have developed a system software for controlling FDD whit ability to emulate PC-DOS system on C64 (shell as Norton Commander) which makes possible that a files from C64 can be recognized on PC and vice versa. Now I have ability to store "great" amount of data on one diskette in format which is compatible whit DOS operating system on PC (files from C64 are readable on PC). This characteristic makes possible to transfer files

from C64 to PC (and vice versa) without any software conversion. It took me about one year to make all this and the best part is when I finally made it I have already bought PC computer. Now this masterpiece of mine is laying down in corner of my room collecting dust..... Advanced characteristic of C64 and problems Two advanced features of C64 (almost unknown to the most users of C64) were very helpful in constructing DDemon: C64 has 512 bytes of address space reserved for I/O devices similar to the PC I/O address space of 1024 bytes in which you can find control register of serial, parallel ports and other I/O devices within PC. This address space in C64 is decoded by two signals (I/O1 and I/O2) which are derived on the expansion port of C64 C64 has DMA input making possible to stop operation of CPU and to take full control over data and address bus. You may say that C64 has already implement logic for DMA type of data transfer. First characteristic of C64 is used to 'plug in' control registers of FDD in address space of C64 making possible to read/write control/status bits from FDD controller by simplest BASIC instructions such as PEEK or POKE. Second thing is used for implementation of DMA transfer in which DMA input is set to '0'. R/W line is also derived onto expansion port and it's 'pull-up' so it can be driven by any device (not only by CPU or Video Controller = VIC). Now everything is simple: Turn FDD drive motor on, switch on controller on the AT-card with simplest instructions (from BASIC or ASS prog.). Initiate DMA Read or Write transfer by writing specified bits in control register of FDD controller. When FDD requests DMA operation set DMA input = '0' (stopping and degating CPU from buses). Generate proper 16-bit address on the C64 address bus, set R/W line of C64 and drive data bus from AT-card to the C64 data bus (this is DMA-Read cycle: reading from diskette to C64 memory). DMA transfer is very easy to

DMA cycles. Latch provides change of address at which the data is to be read from or written in memory of C64 at DMA transfer (in 2KB jumps) * All these signals are active when DMA cycle is active (DMA = "0", DMA line is connected to OC input of latch (output enable)) To write data into latch it is needed to select it by demultiplexer 74139 with inverted signal DEX1. (LE). When DEX1 is at "0" (C input of latch at "1" (LE = 1)), then data on data bus is being written in latch. Address of latch in C64: DFE0-DFEF. ADDRESSING FDD REGISTERS To access data stored on diskette it is needed to address FDD control registers:

registers are at \$DFF0-\$DFF7: -with I/O1 and I/O2 the AEN signal is generated which selects all AT-card, then with address signals A0-A8 (generated by C64) it's possible to precise address FDD registers. That kind of access provides user to easily access FDD-control registers, GAME, COM1, COM2 and LPT port registers (by commands such are PEEK i POKE). * Also you need to generate R and W signals for FDD: R/W from C64 is inverted and connected through 74244 which isn't used in counter. (when R/W "1": R = 0 ; W = 1 and vice versa) This is necessary because these signals are needed to be disconnected (in tri-state) when DMA-cycle is active. (AEN signal controls when these signals are in tri-state: AEN = "0": R i W are active) (lines marked by blue to differ from counter connections) * Note: it seems that R input of FDD has to be pulled up to power by resistor (3.3K) because when it is in tri-state it goes in "0" which causes errors. INITIATION: signals CLEAR/JK, IRQ 6, DRQ 2 It is needed to assure that DMA-device dont turn himself on becuse of some reason, and to start to work from known states (JK-bistabiles). If FDD doesn't work or if FDD registers are not initialized then IRQ 6 output from AT-card float at "1" same as DRQ 2 (signal IRQ 6 is actived at end of DMA cycle, until DRQ 2 is in non-stop use at DMA transfer). That

characteristics I have used in my schemes: IRQ 6 signal from FDD is used as CLEAR/JK signal, when it is on "1" then he blocks JK-bistabil and clears counter (CLEAR/4040). Also to obtain real function of IRQ 6 signal (to signalize end of DMA cycle) I have to gate it by DRQ 2 signal on IRQ line of C64 (IRQ 6 active at "1"). When DRQ 2 is at "0" then it is possible for IRQ 6 to set IRQ line of C64 at "0" (at same time resetting counter and JK-bistabil). * That signal have to be gated through log. device of OC (open collector) or Thri-state ability, because IRQ line of C64 is pull-up and you cannot connect ordinary log. device to it. EPROM (optional) To address EPROM you need to decode CE signal by ROMH and ROML outputs from C64.

To plug in EPROM in address space of C64 you need to set lines EXROM/GAME at "0". Second JK bistabil (T-type) is responsible for that. It's triggered by neg. edge of DEX2 signal (at dfd0-dfdf) from demultiplexer 74139. That means that by addressing these locations you can "turn on or off" your EPROM from C64 address space. The RESET line of C64 is connected to CLR input of bistabil which provides to turn on EPROM just at powering-up time of C64. For all those freaks out there this is export of el. scheme of Disk Demon from EWB4

Download stuff Detail description (~ 130Kb zipped in html format) of software and mostly of hardware stuff you can find in this zip file (unzip in one temporary folder, and you should be able to see everything off-line). It contains description in html format, pictures, source code for software and else (you can get an el. scheme of my masterpiece in Electronic WorkBench 4 format).

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implement, isn't it? But there are some problems: Catch 1: You cannot lower DMA input of C64 at any time. This must take place only when FI2 system clock is low and at start of machine cycle (before CPU executes any instruction). Due to this I have to use bistabil to synchroize C64 and FDD controller. Catch 2: CPU isn't only master on the address and data bus. Video controller (VIC) also takes control over buses by stoping CPU in order to refresh VIDEO memory (this VIDEO memory is in fact ordinary C64 memory placed at \$0400). Worst thing is that this occurs only sometimes when VIC feels need to read out VIDEO memory so it took me about one month to discover this thing. When I finally discovered that behavior of VIC I didn't have clue how to avoid this and to safely write/ read into C64 memory. It took me few months to find out control bit in VIC which is used to turn off VIC making possible to be only master at address and data bus of C64. The screen is blank when you turn off VIC. This is acomplished by lowering bit 4 (DENy bit) at address &D011. Catch 3: Working frequency of 1Mhz and bad contact's can make your life miserable. List of hardware and software Hardware: 1.44Mb floppy-diskette unit for PC AT- controller card (with FDD controller) Interface for DMA transfer (optionally EPROM). Software: C64 Disk Commander (shell that looks like Norton Commander) this is the emulation of PC-DOS on C64. C64 Word this is common text editor for C64 which can store text in ASCII-format with ability to view files greater then 64Kb. Also it recognize USA,CRO i C64 character set. It can operate with 3.5inch diskettes and with cassetes. Electric scheme from EWB4 INTRO This el. scheme looks complicated but this is due to real life digital circuits (such as 74139 and other). Logical scheme (created by simple parts such as NOT, JK and other parts) is much more understandable and simpler but I don't have time to make it. I have never implemented EPROM module so signals such as CE,ROMH,ROML and EXROM/GAME were

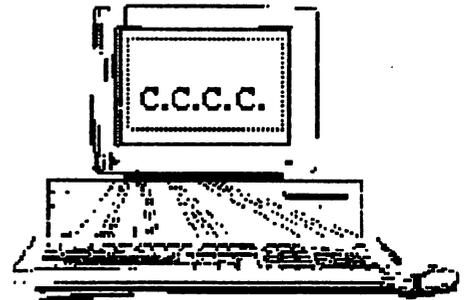
never used. Points (junctions) with same name are connected (e.g. CLOCK).On scheme there are four types of signals: INTERNAL - used only between elements on scheme (e.g. DEX2/\$DFDO,CLOCK,LE,..) C64 - connected only to the expansion port of C64 (e.g. IRQ/C64,RESET/C64,R/W,..) AT-CARD - connected only to AT-CARD (e.g. RES/FDD,IRQ 6,DRQ 2,DACK 2,..) SHARED - signals that are shared by C64,AT-card and this DMA interface and usually with three- state ability (e.g. data and address lines D0-D7, A0-A15) IC 4040 has strange pin out (you can view it from EWB4 because it is custom made IC) but basically it has two controls inputs: RESET-resets counter to zero; CLOCK - CLOCK is negativ-edge sensitive input; Two power pins: Vcc and GND 11 counter outputs (used as address lines). For detailed description about signals on scheme you must download that zip file (at bottom of page). DMA TRANSFER 4040 and 2*74244 are 11-bit (2048) counter with tri-state outputs. Purpose: to address C64 memory at DMA transfer (read or write). CLOCK is negativ-edge sensitive input, CLEAR/4040 resets counter when is "1",DMA controls outputs of counter: when "0" then DMA transfer is active (address outputs of counter are connect to address bus of C64. Function CLEAR/4040 is obtain by IRQ 6, interrupt caused by FDD. * First JK bistabil is used for synchronization of FDD and C64. When DRQ 2 is active ("1") then it is needed at negative edge of FI2 (system clock of c64) to pull down DMA input of C64 at "0" which halts CPU and regain control over address & data bus of C64 (which makes possible for direct read/write in C64 memory by bringing proper address which is provide by our 11-bit counter). PROGRAMING DMA 8-bit latch 74373 is used to memorize other address signals (A12-A15), to fully decode 16-bit address of C64. Also contains values for other signals: R/W (for C64, to notify C64 type of operation: read from C64 memory or write in memory R W (for FDD same purpose) These values are written just one time before

Cincinnati Commodore

Computer Club

Current Officers

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Making the world better one bit at a time.



**Cincinnati
Commodore
Computer
Club**

address
label

**Norwood Bingo Hall
3825 Montgomery
Rd.
Norwood, OH**

**Next Meeting
Sunday
July 16, 2000
from 2 P.M. to
4 P.M.
at**

**Cincinnati Commodore Computer Club
% Roger Hoyer
31 Potowatome Trail
Milford, Oh 45150**