TPUG Newsletter

Views and News of Toronto Pet Users Group
c/o John Easton, 258 Lake Promenade, Etobicoke, Ontario, M8W 1B3 phone (416) 251-1511

Spring — 2013

From the President -

Summer is upon us and soon we will be facing the fall season. The summer months usually mean that outdoor activities take over from being inside poking around on our vintage computers. Fall months mean that soon we will be gathering back together for some more vintage computer fun at our chapter meetings which start back up on the third Thursday in September. The first meeting marks the start of the new year of fun, business and busy-ness at TPUG.

Summer typically is not the time I start any Commodore related projects. I usually wait until the winter months when I'm cooped up in the house anyway and there's not much to do except watch the snow fall and get nostalgic for the 64. I still have a few projects on my Commodore to-do list, but for now the warm weather beckons me.

The summer tends to get very busy and postpones quite a bit of our Commodore activities, except for the odd TPUG-related get togethers, barbeques and the odd "donation runs". The summer months also unfortunately interrupted our annual spring locker cleanup. This is the event where we gather the "eager volunteers" (as I like to call them) to help with the cleanup at our storage locker. A locker cleanup is usually a delicate process. First you need to assess what is most likely to sell and can be used by the fans of all things Commodore, and what is simply junk. Then you need to clean and/or test the equipment and price it for sale. It's usually an all-day event, tiring but fun.

Which brings me to a topic I always struggle with: clearing the clutter. I've always said that I'm not a pack-rat, but I am a pack-mouse. In other words I do collect but I like to purge once in a while and when I do I'm always tossed between what is useful and what is useless. This applies to locker cleanups as well. Always there is the great decision: Should we keep it because we might use it (someday), or throw it away (and possibly regret it down the road).

So to keep you in the know, here are the basic principles we usually follow when we do a spring cleanup at the locker and it's summed up in these simple words: Collect, scrap, sort, store, catalog, and sell.

Collect: TPUG receives a number of donations of Commodore equipment, books, games and various items during the year. Donations of Commodore equipment have dropped off in recent years (it's even getting harder to find Commodore items in the Goodwill stores around the GTA lately) but occasionally we still get donations that include everything from the basic Commodore 64 unit to peripherals and home-made circuit boards and attachments that did who-knows-what back in the day.

Scrap: Often we come across Commodore parts that cannot be used or sold. For example, what do we do with power supplies with the plug cut off, or a very well yellowed plastic housing for a C64 with no motherboard? We try our best to recycle plastics and if it's broken or unusable, we simply discard it. Spare parts from motherboards (chips) are of course retrieved and are used to keep other Commodore machines running.

Sort and Store: Once a donation is received, it is usually sorted based on the item. For example, we receive many 8-pin video cables, serial cables and printer cables. It doesn't make sense to just throw them into a cabinet or corner by themselves. These usually will go into a box of cables that will be made available at World of Commodore.

Catalog: Inventory tracking used to be very difficult years ago but when I joined TPUG, I put in place an inventory process that I call "what's in the box?". Basically if you can inventory the items in a box by number you only need to find that box to get your item. The old method involved opening a box, checking inside, not finding the item, closing the box and moving on to the next box. The new method helps keep track of items that we have in storage by box number. Each box has a number written on it that corresponds to the inventory list. Helps us find items much faster. The only time this method fails is when we have a WOC show and the items get mixed up.

Sell: This is the fun part where we get our return on investment (so to speak) and provide vintage Commodore products to the public by way of the World of Commodore shows and the TPUG webstore (which we are working on getting back online by the way).

And that's it. This method of processing the Commodore items we receive into the locker works for now unless another method comes up, or if the disposition of the locker changes (something that continues to be in discussion). We are also always on the lookout for giveaway items that we make available at our chapter meetings. You never know what will show

Member Information

Voice Info
We have discontinued our TPUG phone listing - contact members as listed here at home phones.

Website: www.tpug.ca
e-mail: info@tpug.ca

Membership Rates

$15 per year
else, with e-mailed Newsletter,
$10 per year

Board of Directors

President   Greg VanLaere
Vice President   John Easton
Secretary   Ian McIntosh
Membership Sec.   Ian Colquhoun
Treasurer   Ernie Chorny
Director   Leif Bloomquist
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Librarians

Head Librarian   Greg VanLaer
Amiga   Ernie Chorny
C128   Tom Luff
CP/M   Ernie Chorny
GEOS   Joe Palumbo
C64   Joe Palumbo
C64 Education   Greg VanLaer
Comal   Ernie Chorny
Plus/4   Ernie Chorny
Vic 20   Ernie Chorny
PET/CBM/SuperPET   John Easton

Support

Store   Ian McIntosh
Telephone   John Easton
Disk Orders   Librarians
Member Records   Ian Colquhoun
Meetings   Leif Bloomquist
            and   Ernie Chorny
Shows   Tom Luff & Ernie Chorny
Webmaster   Ian Colquhoun

Newsletter

Editor   John Easton (416) 251-1511
         jeaston@rogers.com

Meeting Schedule

Westside and Amiga West: Third Thursday of the month (except summer) at Alderwood United Church, 44 Delma Drive. Delma Drive is just west of and parallel to Browns Line, south of the Queen Elizabeth Highway, north of Horner Avenue. From the west, exit QEW at Evans Avenue, east on Evans to next stoplight, south on Gair to Delma Drive. From the north or east, follow signs from QEW or Hwy. 427 to Browns Line, exit right to Evans Avenue, turn south on Gair (first stoplight) to Delma.

Contact - **Leif Bloomquist** (416) 737-2328 leif@schemafactor.com
or   **Ernie Chorny** (905) 279-2730   chorny@bell.net

From your Editor ...

My apologies folks … the dog ate my … well, not really. Ya see, this newsletter was ready to go in the spring 'till our President ran into lots of other responsibilities and never had the time for his usual insightful comments 'till now.

I've always felt that Greg has a lot to add to the flavour of this club … he has worked tirelessly in many roles to the ultimate benefit of the club, so this time, I allowed him some slack. Of course the fact that, comes the end of June, I'm mostly out of here to the cottage in the Great White North (lacking road access, electricity, phone, … hey, why don't I show you my 5" screen, battery-powered Black and White TV that on a good day receives one station) and that too factors into the equation.

Hmmm … and now what am I to do about another issue (by means of explanation, excuse and/or apology, see publishing note below … *somewhat* twice yearly) before this year's World of Commodore? And did you folk realise that this will be the **10th year of the resurrected WoC?**

If I do manage to cobble together an extra issue for this year, I promise, I won't wait for input from our President (Greg, you're off the hook) … come to think of it, the late 2012 version *also* lacked input from our leader. Let's see … there's yet another convention in Chicago to report on (Crazy Canucks 'n such), a Maker Faire in Toronto this month … picture a High School Science open house on Steroids … Lief and other intrepid TPUG volunteers are expected to provide a presence. Perhaps, with luck, we'll have enough content for an end-of-year issue yet.

Thanks for your patience ...
John

Notice to new owners of SuperPet and CBM 8296 machines

TPUG has copies of the Waterloo LANGUAGE DISKS (3 in 4040 format) as supplied with the SuperPet on original purchase.

TPUG has the EXECUDESK disk (8050 format) as supplied with the CBM 8296 on original purchase.

These disks are an integral part of the operating systems of the above machines and since Commodore insisted on referring owners of these machines to TPUG for service, we have added these somewhat proprietory (and also virtually unobtainable) disks to our library - all part of the TPUG mandate of service to our members.

We also will attempt to search out copies of original program disks to replace corrupted disks. In this category you will find such programs as VISICALC, WordPro, and PaperClip.

..... From page 1 ... President's Report

up and it's always intriguing to rummage through the mystery box of the evening.

Fall will soon be upon us so the brooms will quickly be replaced with leaf rakes that will be tidying up the yards, and hopefully down the road we'll be doing the same at the locker (even if "down the road" is next spring again).

So whether you're doing spring cleaning, or summer collecting or fall sorting try to remember: it's not clutter, it's Commodore!

Happy Comm-adoring!
Greg Van Laere

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>From the TPUG Forums

Michael Bonneycastle, the first president of
TPUG, has passed away.

His funeral will be Friday, April 19, 2013, at
McDougall and Brown, 2900 Kingston Road, Toronto.

Mike was the organizer who led TPUG from condo
meeting rooms to multiple monthly meetings, in-
cluding "the main meeting," which drew 600+ peo-
ple each month to a school near Eglinton and
Bayview (Leaside High). Between Mike and the late
Jim Butterfield, TPUG became a wonderful home for
Commodore owners.

A couple of times, Mike pushed me outside my com-
fort zone, and my life improved as a result.

Regards to all,
Gord Campbell
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Joe's World 22 ... the Kernal Routines

The Kernal Routines are machine language programs that are available for the user; some of them require others as prerequisites.

CLALL - 65511: This subroutine closes all open files and resets the pointers in the table of open files (601- 630).

CLOSE - 65475: This subroutine closes the file whose filenumber is in the accumulator .A (in 780).

CLRCHN - 65484: Clears the Input/Output channels and restores them to their default values: Input from the keyboard and output to the screen.

LISTEN - 65457: The various external devices; keyboard (0), screen (3), printer (4 or 5), tape reader/writer (1), disk reader/writer (8 to 11), modem (2) ... all with their own device numbers, are connected to the serial bus, and if a message comes from the computer then they all get it. This LISTEN subroutine produces an identifying message to them all that the following that will come, until after the computer has sent the UNLISTEN message, is intended only for "that one", whose device number is in .A (780). See also TALK and UNTALK.

MEMBOT - 65436 and
MEMTOP - 65433: These subroutines can either change the default limit addresses of BASIC memory space, or copy the existing limit address into .X and .Y. After the computer is switched on, the initilization routine puts the address (2048, later put also into 43/44) of the default bottom of BASIC memory into 641(0) and 642(8), also the address+1 (40960, later also put into 55/56) of the default top of BASIC memory into 643(0) and 644(160). While BASIC is free to change the contents of 43/44 and 55/56 and, maybe, come back, the MEMBOT and MEMTOP subroutines can, if the value in .P (783) is odd, copy the contents of 641/642 or 634/644 into .X (781) and .Y(782) for further use or, if the value in .P(783) is even or zero, copy the contents of .X and .Y into 641/642 or 643/644 as the case may be.

PLOT - 65520: This subroutine is about either moving the cursor on the screen or moving its position on the screen into memory. If the content of .P (783) is odd, then the x-position of the cursor on the screen (0-39) is put into .X (781) and the y-position of the cursor on the screen (0-24) is put into .Y (782). If the content of .P (783) is even

or zero, then the coordinates of the cursor on the screen are set by the contents of .X and .Y. The address of the first column of the line on which the cursor is located is in 209/210, and 211 contains the number of the column on that line and the next one below if it is an extension of the first line (0-79).

RDTIM - 65502: This subroutine is used for reading the three values of system time contained in 162-160, and putting them into .A (780), .X (781) and .Y (782). This is the time as shown on the system clock which is updated every 60th of a second (called a jiffy) by the interrupt system; it increments 160 every jiffy (.01667 seconds). As 160 changes from 255 to zero (every 4.2267 seconds) it increments 161, and as 161 changes from 255 to zero (every 18.2044 minutes) it increments 162. Several operations, such as those related to tape cassettes, can delay the system clock's operations, while the Time-of-Day (TOD) operations are not delayed. There are two TODs, the values of the first one (hours, minutes, seconds and 10ths of seconds) are in 56331-56328. Those of the second one are in 56587-56584. TODs need setting and starting.

READST - 65463: This subroutine reads into .A (780) the value of the status word (also in 144, plus 663 for modem problems) related to the Input/Output devices. The different bits indicate different problems; if anded with 64 shows that this bit is set, for example, then that indicates that the end of the file on the disk or on the tape has been reached.

RESTOR - 65418: This subroutine restores the default values of all vectors.

SETLFS - 65466: First put the file number into .A (780), the number of the device into .X (781) and the secondary address (if none, use 255) into .Y - then call this subroutine. This will then put the file number into 184, the device number into 186 and the secondary address into 185.

SETMSG - 65424: This subroutine, with the help of the flag at 157, controls the printing of the Kernal's messages. If bit 6 (64) of .A (780) is set, then the Kernal's control messages can be printed. If bit 7 (128) is set then the Kernal's error messages can be printed via 63227. The status word in 144 is affected.

Joe Quittner, June 18, 2009

Joe's World 23 ... Kernal routines continued.

SETNAM - 65469: This subroutine requires the length (if disk, then 1 to 16) of the filename (it may include * or ? or a shifted space), and the L and H of the address where in memory its name is located. To get the H, divide the address by 256 and discard everything after the decimal point. To get the L, multiply the H by 256 and subtract

the result from the address. For example, the H of 2049 is 8, and its L is 1; checking, 256*8+1=2049. Using this subroutine, poke the length of the name into the Accumulator .A (780), and the L into .X (781) and the H into .Y(782). Then this subroutine puts .A into 183, .X into 187 and .Y into 188.

SETTIM - 65499: This subroutine sets the system clock (in jiffies); there are 60 jiffies in each second) and requires three numbers: call them a (poked into .A=780), b (into .X=781) and c (into .Y=782). If all of them are zero, then the system clock will start counting at zero jiffies. Otherwise it will start at 65536*a+256*b+c. The maximum count is 5184000 jiffies, representing 24 hours, after which the clock resets to zero.

TALK - 65460: There are usually several devices connected to the serial bus of the computer; each device has an identifying device number with the one in use being in 186. 0=keyboard, 1=tape recorder, 2=modem and outside connection, 3=the screen, 4 or 5=a printer, and any of 8 to 11=a disk reader/writer. The OPEN statements connect the available device with a file number, with different optional file numbers pointing to different devices. This TALK subroutine sends a signal (64 ORed with the device number in 780) to the selected device to now send a message to the computer, such as bytes from the disk drive, or a ready or busy signal from the printer. There is also an UNTALK (95) subroutine, asking that device to stop talking. Compare also with the LISTEN subroutine (32 ORed with the device number in 780) and UNLISTEN (63) subroutine.

UDTIM - 65514: This subroutine, used 60 times each second by the system, updates the system time (jiffy-clock. See variables ti and ti$) via 162, 161 and 160. After 24 hours (5184000 jiffies) it resets that clock to zero. Also this subroutine changes the content of memory address 145 if any of these eight keys is pressed: arrow left (253), 1 (254), 2 (247), CTRL (251), q (191), RUN/STOP (127), C= (223), space bar (239). If none of these keys is pressed address 145 contains 255. See also my remarks related to the RDTIM subroutine - 65502 - that reads the system time.

UNLSN - 65454: After bytes were sent out to a device, this subroutine sends out 63 as an end signal to that device to unlisten. Then the serial bus is free for other uses.

UNTLK - 65451: After bytes were received from a device on the serial bus, this subroutine sends out 95 as an end signal to stop sending any more, to untalk.

VECTOR - 65421: It depends on whether the carry flag in .P (783) is set or is clear when this subroutine is entered whether this subroutine will copy the list of 16 vector addresses (32 bytes) into a given optional memory parking area, or whether that list is copied from a parking area into its proper position. Do NOT try to use BASIC to operate this subroutine because the interrupt system may be involved and it is possible this would lead to a computer hangup that could only be cured by switching off the power, with the consequent loss of memory content.

.... A vector is an address (2 bytes, High and Low) representing a signpost telling the program where to go next, but that address can be changed by a user who wants the program to go somewhere else first, and then go to that address after that additional task has been done.

.... Before calling this VECTOR subroutine, designate an optional 32-byte space in memory to be used to park the list of the 16 signposts. Put the starting address of that parking space into .X (L into 781) and .Y (H into 782) and also set the carry flag in .P (783); only then call VECTOR; it will copy a list of these 16 signpost addresses into that designated parking area.

.... Next, you can make changes to that parked signpost list, so that the program will do another task first; but always make sure the program eventually will go to that particular vector's original signposted address.

.... Now the dangerous part: Clear the carry flag in .P (783); if not already there, put the address of the first item of that parked list into .X and .Y (see above), than disable the interrupt system (SEI), enter the VECTOR subroutine, after which you re-enable the interrupt system (CLI).

.... **Example:** I want to change the screen's frame colour when I push the RESTORE key (push hard!). I write a program into 20000+ that will do this, ending it with a jump to what is normally in the 792/793 vector: 238, 32, 208,76, 71, 254. Normally I would then put 32 into 792 and 78 into 793 (pointing to 2000), without using VECTOR. But if I would want to use VECTOR, what would I do?

.... Next I decide on a parking area; I use disks, not tapes, so that 820-1023 is free to use for parking. 820 is 52-3, therefore I poke 52 into 781 and 3 into 782.. What is in 783 now? If it's an even number then I add 1 to it to set the carry flag.

.... Next, to move the table of signposts into 820+, I type sys65421 which is VECTOR, and then I check the contents of 820+ to make sure that it has done that; this table should start with 49, 234, 102, 254, and then the one I want to change from 71 254 to 32 78 (=20000, the start of my program). I make that change in 824 and 825.

.... Next,. Careful!, to move the parked and revised list into its "proper" place, I write a program into 900+: 162, 52, 160, 3, 24, 120, 32, 141, 255, 88, 96. Then I type sys900 to make the change.

.... Provided my program in 20000+ is kept there, I can now change the colour of the screen's frame at any time by pushing the RESTORE key (push hard) when convenient.

The listed vectors are: 788/9 (49-234) to IRQ interrupt, 790/1 (102-254) the Break instruction, 792/3 (71-254) Non-Maskable Interrupt (see example above), 794/5 (74-243) OPEN, 796/7 (145-242) CLOSE, 798/9 (14-242) CHKIN, 800/1 (80-242) CKOUT, 802/3 (51-243) CLRCHN, 804/5 (87-241) CHRIN, 806/7 (202-241) CHROUT, 808/9 (237-246) STOP, 810/11 (62-241) GETIN, 812/13 (47-243) CLALL, 814/15 (102-254) to the Break instruction too, 816/17 (165-244) LOAD, and 818/19 (237-245) SAVE.

Up to here are the Kernal routines that do NOT need others to go first.
.... to be continued ...

Joe Quittner, September 17, 2009

SX-64 Flashmob

The thirtieth anniversary of the introduction of the SX64. Avatars from around the world gathered … mostly at a local Starbucks after a prompting from the Netherlands. Our Starbucks was crowded … but we were there!

Januari 2013 – Commodore SX-64 party @ Starbucks…

Posted on 20 January 2013 by Berry … Amstderdam

The Commodore SX-64 was announced in January 1983 and released a year later and sadly enough discontinued in 1986. So January would be a perfect opportunity to celebrate however we can schedule parties all year long… or even until 2016, which is a little far fetched. So when January is not the best of the year, wintertime, feel free to schedule another time .

Let's keep up with the Commodore especially on the anniversary of the executive, luggable edition of the best computer ever. So therefore I would like to propose a semi-virtual meeting, to keep our eco-footprint as low a possible, by meeting up with some friends and their SX64 in a local cafe. Click here to find your local coffee brewer and join the SX64party flashmob.

Why shouldn't we rejoice the 30th anniversary of the good old Commodore SX-64 at a place where the corporate suits and students show off their latest gazillon-megahertz lapware? Just bring your SX-64 along and enjoy a coffee, first round is on me, when I am physically at the venue.

What can you nowadays do with your SX-64? At least everything you need is in the box. Take some pleasure of enjoying demos, play a game with your friends or ever do some serious accounting with your friends. And if our are really eager Twittering on the Commodore SX-64 is still an option. So you don't have to let go on your daily habits

So if you like this idea, please sign up and drag your gear to your local, or not so nearby coffee-club and have some fun! First coffee is on me, when I am also in the vicinity.

Tom Luff and Tom Williams

Rob Adlers attempting to establish an Internet Link

Leif Bloomquist and Rob … link overloaded

Joe Palumbo, Mike Stein, Leif and Rob … and others. Is that Jeff Boudreau in the background?

World of Commodore 2012

This reprinted from retro-link.blogspot .com under the byline Paul Quirk
see also   http://www.youtube.com/playlist?list=PLZmmcoa_e5887p0vkNAmApOEktxzS8AgP

I had the opportunity to attend World of Commodore 2012 in Mississauga, Ontario yesterday.

The event took place in a conference room in the Admiral Inn. This is an annual event put on by the Toronto Pet User's Group (TPUG); the oldest user's group in Canada, and the second oldest user's group in the world. There were a variety of exhibits, including demonstrations and products for sale, a freebie table, and an itinerary filled with excellent speakers covering an interesting range of topics from modern hardware developments to the use of Commodore computers in the arts.

I had the opportunity to meet some old friends and make some new ones. It was also a place to rekindle some friendships I believed were long lost. The real pleasure was getting to meet Jeffrey Daniels of Denial in person for the first time the following day. With so many fascinating individuals who attended the event, some from some great distances, it was worthwhile just to be in the same room and talk about our varied interests in retro computing. Ever increasingly, the appeal seems to be about the aesthetics and creative artistic outlet represented by these vintage machines.

There's a trend these days to rekindle some of the great classics on modern hardware, so it was a pleasure to listen to a speaker from Comma 8 studios describe the process and challenges involved in bringing a modern version of M.U.L.E. to modern platforms like iPhone and Android. We got to listen to some possible theme music for the upcoming game, got to see how the characters are now rendered graphically, and got some insight into some of the challenges of creating a multiplayer game on these devices.

Jim Brain of Retro Innovations was present with a table selling his clever devices (I'm a huge fan and user of his uIEC), and announced that he was now able to legally sell JiffyDOS for the Vic 20, Plus/4, and Commodore 16 computers. I made sure to buy the first Vic 20 JiffyDOS chip after his presentation. This, combined with the uIEC and daughterboard, brings these computers into the 21st century; with the uIEC providing a modern SD card alternative to the 1541 disk drive, and JiffyDOS a fast and easy way to work with SD card files and images on the uIEC.

Next, we were treated by a presentation by a speaker from the Toronto Animated Image Society (TAIS) about a project, HelloAmiga.ca, where the Amiga computer was used in creating works of animated art. The microphone was then turned over to Mark Pellegrino, who treated us to G.I.R.L. This animated short work of art was completed using Deluxe Paint in an emulated Amiga. It was somewhat dark, somewhat disturbing, and yet very funny and entertaining at the same time. It was excellent.

Going along with the creative arts theme, Jeffrey Daniels of Denial presented his work the next day, explaining his philosophy of programming and his reasons for that philosophy. Some of his games are stunningly original, all are very playable. By drawing on subtle concepts of our consciousness, he develops themes that intrigue and draw us in. Some seasoned Commodore users are surprised that Jeffrey doesn't use machine language, as some of his games are so sophisticated they suggest that they might be written that way. I often think that had Jeffrey's games existed at the time the Vic 20 was created, Commodore's original intention of using the Vic's video circuitry in arcade machines may have been realized.

Unfortunately, I arrived too late to catch the first presentation, and had to leave before the final one. However, the event was well worth the $10.00 admission fee, and I decided to sign up as a TPUG member for a year. Besides buying Jim Brain's clever products (a daughtercard for my uIEC, along with JiffyDOS for my Vic and 64), I also scored an MPS 802 in great shape from the freebie table, and Cymbal's Games 20 book 1 for a dollar. Those of you who know me have seen my Youtube video of me opening up a Vic 20 for Christmas, showing off the Vic and this very Cymbal games book. The MPS 802 was the first printer I ever owned, and completes my original Commodore 64 set-up.

Ultimate Modded Commodore VIC-20 - Leif Bloomquist

Hi everyone, here are the slides and photos I presented at World of Commodore 2012, showing the inside and outside of my modded VIC-20, with lots of cool enhancements. Hope if gives you some ideas for your own projects.
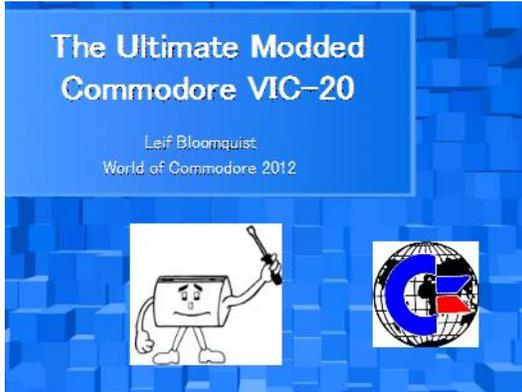
About the Project

Goal: Maximize convenience, capability and fun when using the VIC20, without sacrificing the overall experience.

Turned out to be very handy for rapid cross-development!

My modifications (see photos)

White keyboard from a 64C (Figure 1)
Blue power LED (Figure 2)
Reset button (Figure 3)
JiffyDOS and Kernal switch (Figure 3)
Embedded uIEC/CF (Figures 4 and 5)

Must-Have Accessories for the VIC-20

Mega-Cart (www.mega-cart.com)

Nearly every VIC cartridge, game, and utility on one cartridge!

MasC=eurade Adapter (www.go4retro.com)

Connect C64 I/O mapped cartridges like 64NIC+ to the VIC!

Final Expansion 3 (just Google it)

Extension of the memory (SRAM) to 512K
A large 512KB flash memory for the operating software (firmware) and frequently used programs
A mass memory as a floppy disk replacement based on an SD card (SD2IEC) for up to 2GB
A real-time clock (RTC) and a connection for the extension of the LCD display

X-Pander 3 for VIC (www.go4retro.com)

Plug up to 4 cartridges into the VIC Expansion Port
Coming soon?
JiffyDOS for VIC (Now available from www.go4retro.com)

Figure 1 - White keyboard from a Commodore 64C

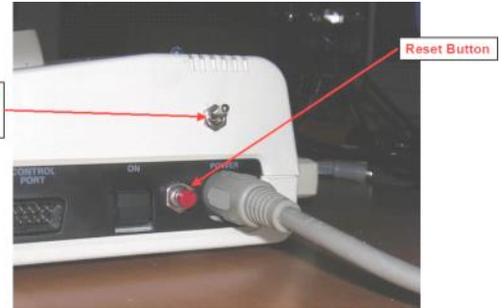Figure 2 - Blue Power LED and activity LED from uIEC

Figure 3 - JiffyDOS switch and reset button

Figure 4 - Cutout above cartridge slot for Compact Flash card

- Desoldered original power LED and substituted 2-pin header
- Connect a normal PC "Turbo" (or HDD) LED !
- Hardwired into IEC bus on underside of motherboard

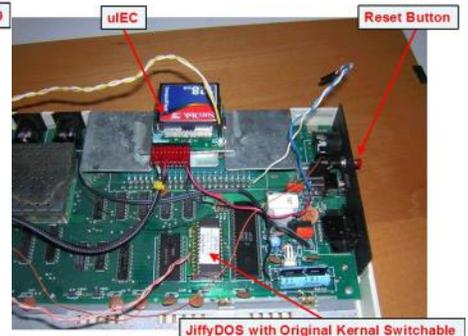Figure 5 - The uIEC embedded inside the VIC (mounted on cartridge slot)

Figure 6 - All the motherboard modifications

CheerLights for the Commodore 64

By Leif Bloomquist

The "Internet of Things" is taking off, and one of the more whimsical examples recently is ioBridge Labs' Cheer-Lights project (www.cheerlights.com). With CheerLights, people around the world are synchronizing their Christmas lights, real and virtual, using Twitter. By sending a "Tweet" to @cheerlights containing the color you want, all the devices on the CheerLights network change color to match.

Most participants would be using an embedded Internet-enabled computing platform for hobbyists, such as an Arduino, Raspberry Pi, or other microprocessor, to accomplish this. There are even iPhone and Android apps available so you can watch the colors change on your phone.

But wait – I already have a perfectly good hobbyist computing platform – the Commodore 64. And with the addition of a 64NIC+ from Retro Innovations (or compatible devices such as the RR-Net), the C64 is now Internet-enabled as well.

And thanks to KipperBASIC from Jonno Downes in Australia, programming Internet applications in BASIC for the Commodore 64 is easy and fun. So I set about to create a simple CheerLights client, just to prove it could be done. It turned out to be pretty easy; I had it going in a single evening and just in time for Christmas 2012. Read on for how it works.

Accessing CheerLights

While there is at least one Twitter client for the Commodore 64 (I'm referring to BreadBox64 by Johan Van den Brande), using Twitter directly has some challenges such as the recent Twitter API security changes. Plus it's simply too complex to access elegantly from a C64, never mind BASIC.

Fortunately, ioBridge has provided a simple web page through their ThingSpeak site that reports the latest color in real-time. You can access it as XML (Extensible Markup Language), JSON (JavaScript Object Notation), or plain old ASCII text. The latter is by far the simplest, and the address is here:

http://api.thingspeak.com/channels/1417/field/1/last.txt

In theory, all that's required is to make the Commodore 64 pretend to be a Web browser, send a GET command to request the page, and parse the data that is returned and match it to one of the defined colors.

Not so Fast!

In practice, it wasn't quite so simple. Some of the issues I had to overcome were:

ASCII vs. PETSCII. The Web (specifically, the Hypertext Transfer Protocol) uses ASCII, whereas Commodore BASIC uses PETSCII. Fortunately this is an easy conversion.

Compression: Many websites, including ThingSpeak, "compress" websites using the gzip method to speed up transmission, and they are then decompressed by your browser, hidden from the user. I had to analyze the data using Wireshark (An Ethernet network analyzer) on my PC to confirm this, and ensure that my GET command wouldn't invoke the compression.

Error Handling: Network programming is notoriously difficult, as there are dropped connections, timeouts, and corrupt data to contend with. Even in BASIC.

The Graphics

I'm no artist, but I was able to put together a fairly passable Christmas tree using PETSCII Editor V3 by "Wolf/MetalVotze", available at the address below. I like this editor because it lets you draw the art first and then add the colors in a second step if you prefer. http://csdb.dk/release/?id=102153

Once the tree was done, I split the results into two files (graphic data at $0400 hex, and color data at $D800 hex) and noted the memory addresses for the lights.

The Code

Here is the resulting KipperBASIC code. You can see it's quite short! I've provided a description in the next section. Note the new networking commands provided by Kipper-BASIC, in bold.

```
0 DN=PEEK(186):SS=1123
1 IF Z=1 THEN 6020
2 IF Z=2 THEN 29
5 POKE 53280,0:POKE 53281,0
10 PRINT"{CLR}{ORANGE}PERFORMING
DHCP{DOWN}{WHITE}":DHCP:IPCFG
20 READ A:IF A>0 THEN GT$=GT$+CHR$(A):GOTO20
21 R=1:DIM U(10)
22 READ L:IF L>0 THEN U(R)=L:R=R+1:GOTO22
25 PRINT"{DOWN}PRESS ANY KEY TO START."
26 GET A$:IFA$="" THEN 26
27 POKE 53265,PEEK(53265) AND 239:GOTO6000
29 POKE 53265,PEEK(53265) OR 16
30 POKE SS,87
31 PRINT"{HOME}{BLACK}";
32 TCPCONNECT"184.106.153.149",80
35 POKE SS,81
40 TCPSEND GT$
45 TM=0
50 POLL
55 TM=TM+1
56 IF TM>100 THEN POKE SS,86:TCPCLOSE:GOTO31
60 IF CO%=0 THEN GOSUB 5000:GOTO30
70 IF IN$="" THEN 50
80 C$="":FOR A=1 TO LEN(IN$):
C$=C$+CHR$(ASC(MID$(IN$,A,1))+96):NEXTA
100 IF C$="RED" THEN C=2
110 IF C$="GREEN" THEN C=13
120 IF C$="BLUE" THEN C=6
130 IF C$="CYAN" THEN C=3
140 IF C$="WHITE" THEN C=1
150 IF C$="WARMWHITE" THEN C=12
160 IF C$="PURPLE" THEN C=4
170 IF C$="MAGENTA" THEN C=14
180 IF C$="YELLOW" THEN C=7
190 IF C$="ORANGE" THEN C=8
200 POKE 53280,C
210 FOR B=1 TO 10:POKEU(B),C:NEXT
300 GOTO 50
999 :
1000 REM ASCII VALUES OF HTTP GET
1010 DATA
71,69,84,32,47,99,104,97,110,110,101,108,115,47,49,52,49,
55,47
1020 DATA
102,105,101,108,100,47,49,47,108,97,115,116,46,116,120,1
16
1030 DATA 10,13,10,13
1090 DATA -1
1099 :
1100 REM COLOR RAM LOCATION OF LIGHTS
1110 DATA
55597,55631,55713,55844,55878,55950,56023,56080,56149
,56165
1120 DATA -1
4999 :
5000 REM DELAY
5010 FOR D=1 TO 1000:NEXT:RETURN
```

```
5999 :
6000 REM LOAD ROUTINES
6010 Z=1:LOAD"TREE-CHARS-0400",DN,1
6020 Z=2:LOAD"TREE-COLOR-D800",DN,1
READY.
```

Code Description

Here is a detailed description of the program, pointing out some of the tricks. It's somewhat convoluted in places (hey it's BASIC!) but should be reasonably easy to follow along.

Line 0: Read the current device number. I didn't want it hardcoded to Device #8 so that the uIEC, IDE64, etc. could be used. SS is the memory address of the screen location of the center of the star.

Lines 1 and 2 use a temporary variable to manage the loading of the tree graphics.

Line 10 invokes the DHCP command, telling your 64NIC+ to use the Dynamic Host Control Protocol to "ask" your router for an IP (Internet Protocol) address, just like your PC. The IPCFG command prints the resulting address.

Line 20 reads in the DATA statements at line 1000, containing the ASCII values for the GET command, and puts them into GT$.

Lines 21 and 22 read in the addresses for the lights in color memory from the DATA statements in line 1110, and stores them into an array called U.

Line 25 and 26 wait for the user to press a key.

Line 27 blanks the screen and initiates the loading of the tree graphics.

Line 29 turns the screen back on.

Line 30 is where the fun starts. I POKE a value into SS, the center of the star, to make it appear to blink.

Line 31 is a trick to hide the output from the TCPCONNECT command, by printing black on black on an unused part of the screen.

Line 32 initiates a TCP (Transport Control Protocol) connection to the server. This is the current IP address of api.thingspeak.com . If the address ever changes, my program will break! In theory KipperBASIC supports DNS (Domain Name Service) so I could use the server name directly, but I wasn't able to get it to work.

Line 35 POKEs a different value into SS to make the star appear to blink again (you can use the state of the star to monitor the network activity this way).

Line 40 sends the GET command to the server.

Line 45 starts a timer.

Line 50 uses the POLL command to look for data returned

from the server. KipperBASIC requires you to do this periodically.

Line 55 increments the timer.

Line 56 checks if the timeout has expired. If it has, put an X at the center of the star to indicate a failure, close the connection, and start all over again at line 31 (without the star blinking).

Line 60 checks a special variable used by KipperBASIC called CO% that indicates the state of the connection. If it is 0, the connection has been closed (normally) or failed. The program then waits a few seconds using the delay routine at line 5000, and starts all over again at line 30 (which makes the star blink again…)

Line 70 checks a special variable used by KipperBASIC called IN$ which is a string containing the data that has been received. If empty, go back to line 50 and keep polling.

Line 80 takes the received data and converts it from ASCII to PETSCII by adding 96 to the value, and puts it into a string variable called C$.

Lines 100 to 190 compare C$ to the ten defined colors, and assigns C to the appropriate color in the C64's 16-color palette. The C64 doesn't have magenta so I substituted light blue. If there's no match, C isn't changed and the color remains the same.

Line 200 changes the border color to the selected color.

Line 210 POKEs the selected color to each of the lights in color memory.

Line 300 goes back to line 50 to keep polling, though normally the Web server will close the connection now that's it's finished returning data (which will be detected in line 60).

Line 1000 on has DATA statements containing the ASCII string "GET /channels/1417/field/1/last.txt" with two carriage return and line-feed pairs.

Line 1100 on has DATA statements with the addresses of the lights in color memory.

Line 5000 contains a short delay loop.

Line 6000 onwards manages loading of the graphic and color data. This is using the classic trick of a temporary variable (in this case, Z) which maintains its value, even though the program will automatically restart after each LOAD.

For More Information

You can download a D64 virtual disk image with Kipper-BASIC and the CheerLights code and graphics from here. If you don't have a 64NIC+ or RR-Net, you can also run the program in the VICE emulator.

http://www.jammingsignal.com/leif/commodore/cheerlights/

To learn more about KipperBASIC, please visit
        http://www.lyonlabs.org/commodore/kb-bob/

Future Ideas

This was a quick proof of concept, but I already have some ideas for an enhanced version for next year: Music, better graphics, and maybe even controlling real Christmas lights through the C64's User Port, possibly using a VIC-REL relay cartridge.

I hope I've given you some ideas and shown how easy it is to network your C64, and you'll embark on your own projects in the "Internet of Things"!

Leif Bloomquist

Gleanings from the net …
specifically, comments from torontocbm

Hey folks, Here is an incredible, detailed retrospective from Michael S. Tomczyk (VIC 20 Product Manager – Protégé of Jack Tramiel – Author of 'The Home Computer Wars') with many cool and rare photos. Enjoy.
http://www.retrocommodore.com/retro/images/documenti/Retrocommodore-Presentation_Rome-Italy_Michael-Tomczyk_18Nov2012.pdf
Leif

You may have seen this video as it dates back to mid 2012 but if not, then have a look at a C64 made into (or melded with) a bass guitar as put together by Jeri Ellsworth.
http://www.youtube.com/watch?feature=endscreen&v=_kDhpFaf4EY&NR=1
Ernie

The Toronto PET Users Group (TPUG) is pleased to announce the World of Commodore 2013! TPUG would like to invite everyone to join us for the 10th edition of the resurrected WoC. *http://www.worldofcommodore.ca/*

December 7th 2013, doors open 10AM.
Once again the event will be held at:
Admiral Inn
2161 North Sheridan Way
Mississauga, Ontario
Reservations: 1-905-403-9777
(Toll-Free): 1-888-236-4660
Website: http://admiralinnmississauga.com/

Highlights:

- Information about and displays of a variety of Commodore computers
  * Demonstrations of new hardware and software projects using Commodore equipment
  * Screenings of Commodore related videos
  * Vendors selling the latest hardware and software available for Commodore computers as well as classic hard-ware, accessories, applications, games and much more
  * The always popular freebie table! Please feel free to drop off any items you no longer want and help yourself to some goodies. You never know what you'll find!

  The events get underway on Friday evening while our vendors set up and we welcome our guests from out of town. Everyone is welcome to attend.
  After the formal show ends on Saturday the festivities continue with an informal evening of socializing, hacking, gaming and other things so please feel free to make a weekend of it.

- Vendor tables and demo slots are available. Please contact us through the website to make arrangements if you are interested.

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