TPUG Newsletter

Summer— 2007

From the President -

The Commodore community has lost an icon and a great friend.
Jim Butterfield passed away in his sleep June 29, 2007. He succumbed to Lymphoma. Everyone will remember Jim as a warm, giving person who was very entertaining and informative. Jim came to Toronto to work for a railroad company in the Telecommunications industry. In the late 70's he and Lyman Duggan and others formed TPUG. During the mid 80's Jim was a part of TV Ontario's THE COMPUTER ACDEMY where he would inform people how to use their computers (all platforms). In recent years he has entertained Commodore enthusiasts at Commodore Expos here in Canada and the United States. Jim will be missed by us all.

Coming Dates

ECCC will hold their second Expo on Saturday, September 29 in Lombard, Illinois. Visit http://starbase.globalpc.net/eccc/ for additional information.

CommVEx 2007 or COMMODORE VEGAS EXPO v30 will hold their third Expo Saturday July 28th and Sunday July 29th, in Las Vegas, NV.
Visit http://www.portcommodore.com/commvex/ for additional information.

TPUG will have their **Annual General Meeting** on October 11, 2007. This is your opportunity to elect new board members and voice your opinion and make changes in how TPUG conducts itself. Only members whose membership dues are up to date can participate. The meeting will be held in the Alderwood United Church, 44 Delma Drive, Toronto at 8:00 PM.

World of Commodore will be held December 1st, 2007. Start making plans for it now! Visit www.tpug.ca for more information as it becomes available. It will be held at Alderwood United Church, 44 Delma Drive, Toronto starting at 10:00 AM.

Enjoy your summer and keep tapping your keyboards.

Regards, **Tom Luff**

Date: Sunday, July 01, 2007 11:01 AM
For those of you who may not have heard, Jim Butterfield has succumbed to his illness.

We believe he passed away in his sleep at about 1:30 AM June 29, 2007. Please note this time of death is based on information sent to me thorough a series of handed down e-mails. Jim will be missed by his surviving wife, family, friends and the Commodore community. The Toronto PET Users Group sends its condolences. Jim was a kind person, a good family man and an icon. We will all miss this generous man.

This is the message as I have received it. It appears it may have been sent by the family (unsure), to a close family friend, passed to another person then passed to me.

BUTTERFIELD, Frank James—Peacefully at Princess Margaret Hospital on Friday, June 29th, 2007. Dearly loved husband of Vicki and father of Susannah. Survived by his big brother Jack (Winnie) and baby sister Meg Cliff). Uncle Jimmy was loved by many nieces and nephews. Jim was born in Ponoka, Alberta on February 14th, 1936. He gave up his career in communications in 1981 to take on the role he most loved - Computer Guru Extraordinaire to a host of geeks and non-geeks drawn to the world of Commodore Computers. A private funeral has taken place and a celebration of Jim's life will be announced later in the summer. If you wish, you may remember Jim with a donation to your favourite charity. A heartfelt thanks to the wonderful staff on 15B at Princess Margaret Hospital.

TORONTO STAR—Deaths - Date Posted:2007-07-07

Sent: Friday, June 29, 2007 8:28 AM
Subject: **Jim Has Left the Building**

The nurse who'd been with him called a couple of hours ago to tell me that Jim had died peacefully at 1:30 this morning. There won't really be a funeral per se, but there will be some kind of celebration of Jim's life in the next month or so.

When I hear more I will sent it along.
Tom Luff for TPUG Board Of Directors

Jim Butterfield — WoC—2006

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

Canada	$25
USA	US $25
International	US $25

Board of Directors

President	Tom Luff
Vice President	John Easton
Secretary	Ernie Chorny
Membership Sec.	Ian McIntosh
Treasurer	George Turek
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C64 Education	Greg VanLaer
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Vic 20	Ernie Chorny
PET/CBM/SuperPET	John Easton

Support

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

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 - Tom Luff (905) 812-5231 e-mail: tomluff@rogers.com
or   Ernie Chorny(905) 279-2730   chorny@tamcotec.com

From your Editor ...

This issue contains reprints of reports from last December's **World of Commodore** from our local newspapers (**Globe and Mail** and **Toronto Star** plus one from **IT Business**) - suffice to say, the event was a success.

Also, in the routine of our monthly meetings we were introduced to the vagaries/complexities and wonder of Machine Language for the 6502. As a part of this education, we're passing on the first of a few studies on the subject by one of our elder members, **Joe Quittner**. In place of our president's usual column—Tom's World, we're reverting to a new **Joe's World**, copies of which Joe has recently quietly been bringing to meetings for distribution and education. I'm also re-printing some of the commentary on these meetings from **TorontoCBM**—the newsgroup for local Commodore nuts.

And, we've just heard of the demise of Jim Butterfield, a friend and advisor from time immemorial—*Jim, I treasure the memories of my time with you—even up to last year's `escape from hospital' escapade wherein we conveyed you from downtown Toronto to the wilds of Etobicoke for just one more comment on the peculiarities of Commodore Basic.* Folks, we really must attempt to put together a history of Jim's contribution to the world of computer education/acceptance. **Bill Cumberland,** *(he who first lured Jim to the big city)* - any comments?

And that is just one more reason to attend the World of Commodore Expo this year. Should I mention that pre-registration via the website is a good idea?

John ... y'r humble Editor

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.

IDE64 V4   Cartridge for the Commodore 64

The IDE64 is a very cool cartridge for the Commodore 64 that lets you connect IDE hard drives and CD-ROMs, as well as Compact Flash cards (like those used in digital cameras). The latest version 4 prototype is almost finished. The IDE64 is being designed by Josef Soucek, Tomas Pribyl and Kajtar Soltz."

Because of surface mount technology, the shape of the card has changed and the length has shortened to 11 cm. The ShortBUS connector for external peripherals has remained, but also, an "Amiga Clock" port has appeared, so RR-Net users could connect their Ethernet cards directly onto the IDE64.
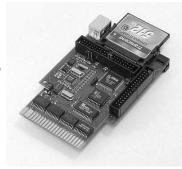
The IDE64 contains two IDE controllers for plugging up to three IDE peripherals (Compact Flash and two other on IDE flat cable). USB device will enable users to interconnect IDE64 with PC and make file transfers between C64 and PC even more easy.

The IDE64 will contain IDEDOS V.90 which offers great performance (e.g. 80KB/sec loading speed), very reasonable compatibility and many advanced features including support of partitions, relative files or large capacity media.

IDE64 V4 technical parameters:
- Size 7x11cm
- RAM 28KB
- PEROM 128KB (flash EPROM)
- RTC (Real time clock with static 31 bytes RAM)
- Full speed USB 1.1 / USB 2.0 device
- ShortBUS
- Amiga Clock Port
- Two IDE channels (CF and 2 IDE devices)

For more details, visit *http://news.ide64.org/*

When the IDE64 V4 is complete, it should be available from Protovision in Germany, *http://www.protovision-online.de/* or Modernity Group in Canada.*http://wings.webhop.org/*.

Joe's World … #1

There are about 64000 memory locations (actually 2 to the power of 16=65536) numbered from zero to 65535. Each of them can contain only any number, called a byte, between 0 and 255.

There are different languages that may be used to communicate with the computer; these are the machine language, the assembler language, and the BASIC language that can be used to see, for example, which number is in which memory location. When the computer is switched on, internal programs ensure that the keyboard is activated, and the user is able to communicate with the internal programs in BASIC.

If line numbers are used, then what is typed in is stored internally, but it is retained only as long as the computer is on; it is possible to save the typed-in programs and/or data on either a disk or on a tape.

If no line numbers are used, that is called the direct mode, then the result can be seen immediately. For example, to see which number is in 59903, using the BASIC language, type **?PEEK(59903)** and the result, shown on the screen, is 160. To see which number is in 213 then type **?PEEK(213)** and the number 39 will appear on the screen.

Using BASIC with line numbers, we can make, for example, a program ask for a number, and get the content of that memory location, as before; then the program will ask for the next number again and again, until the computer is switched off.

1000 input"Which memory location";a: ?PEEK (a):goto 1000

The computer will wait for you to type in some more lines, but no more is needed for that task, so you type run to execute the program you have typed in.

Usually using machine language is faster than BASIC, no time is needed for the computer to translate your commands, in English, into machine language. Very often certain memory locations are used, called registers, such as:

location 780 is called the accumulator, or .A
location 781 is called the X register or .X
location 782 is called the Y register or .Y
location 783 is called the Status register or .P

Machine language uses many special numbers, called op-codes, with each one of them doing a specific task. These op-codes have to be located in memory, and usually one or two additional numbers, following the op-code, are required to carry out that instruction. There are 1-byte instructions, 2-byte instructions and 3-byte instructions.

    For example:

169 123 will put 123 into .A
162 234 will put 234 into .X

160 112 will put 112 into .Y
This is called loading the registers.

If we want to store a number into general memory, then it depends on whether that memory number is lower than 256 or not. If, for example, we want to put the content of .A into 251, then we use 133 251
to put .X into 252 use 134 252
to put .Y into 253 use 132 253

If we want to load a memory location that is between 256 and 65535, say for example 49153, then we first must divide that number by 256 and find the remainder; in this example 49153 divided by 256 is 192, with the remainder being 1. Then to store the content of .A into 49153 we use 141 1 192 to store .X into 53247 we use 142 255 207 to store .Y into 49154 we use 140 2 192

To get from BASIC into machine language, we may use data statements, with commas between bytes, in BASIC. That will load the machine language program into a given part of memory, and once all the statements are there we type SYS followed by the location of the first statement. The 96 at the end of the program returns the computer back to BASIC, whose next task, after the sys command, is stop. Then the keyboard is enabled again; and the 999 at the very end, making a to be larger than 255, stops loading the required bytes into memory. For example type without typing mistakes:

1100 for i=820 to 1023: read a: if a > 255 then sys 820: stop
1110 poke i,a:next
1120 data 169,123, 162,234, 160,112, 133,251, 134,252, 132,253
1130 data 141,1,192, 142,255,207, 140,2,192, 96, 999

Assembly language is partly in English, and assembles the program in machine language. For example, LDA means load the accumulator. But there are 8 different ways in which a byte can be loaded into the accumulator.

Typing LDA # 123 will load the number 123 into the accumulator in what is called the direct addressing mode.

Typing LDA 123, without the #, will take the content of memory location 123 and load it into the accumulator. Because 123 is less than 256 this is called the Zero Page addressing mode, resulting in a 2-byte instruction.

Typing LDA 345 will take the number contained in memory location 345 and load it into the accumulator, but because 345 is between 256 and 65535 this will result in a 3-byte instruction. This is called the absolute addressing mode.

World Of Commodore

Toronto Expo

To be hosted by the Toronto PET Users Group, now in its 28th year.

December 1, 2007
Hours are 10am till 10pm.

At Alderwood United Church,
44 Delma Drive (Browns Line/Evans Ave),
Toronto, Ontario, Canada.

Accommodations at … Best Value Inn (650 Evans Ave)
(416) 255-5500 or (888) 525-8346 - info@bestvalueinntoronto.com
Guestrooms are $70/night for 1 bed or $80/night for two (Queen size).
Ask for group name: TPUG All funds are in Canadian dollars.

Aside … some folks have enquired about accommodations at the Stay Inn—just down the street.
Rooms there cost about $25 more per night, but all have two queen sized beds. They do have some-
thing of a party room—available on negotiation and dependent on number of reservations booked.
We'll leave this option open to on-line negotiation. http://stayinnsuites.ca/

There will be vendors selling new and old products, demos of innovative ideas and guest speakers revealing facts about days-gone-by from Commodore and TPUG.

Admission is $10 per person,$15 per family, FREE if you have renewed your membership with TPUG as of October 19, 2007.
Tables are $15 for the first one and $10 for each additional table.
TPUG will set up a freebie table, give out door prizes and hold a raffle.

On Friday evening TPUG will welcome out of town guests at the church for setup and to say hello to old friends. Saturday will be the main event. On Sunday morning the overnight guests are invited to a round table to discuss the weekend.

For more information visit our web site, www.tpug.ca/woc. Please pre-register early so TPUG can prepare suitable name-tags and get a better idea as to how many are coming and their needs.

They adore their 64s

IAN DAFFERN   Special to The Globe and Mail

For a fervent crowd of Commodore loyalists, the 1980s computers are as good as new

In a church basement on a Thursday night, a robust middle-aged fellow with thick glasses hammers the keys of a beige Commodore 64. Tom Luff is showing off a version of Monopoly. "Okay, St. Charles Place," he says, staring at a screen where the game board appears in chunky primary colours. "This will cost me $104. Let's see if it puts it up for auction. Oh, it didn't. Son of a gun!"

The payoff never comes -- but for Mr. Luff's audience of about a dozen men, seeing an unfamiliar game on the 1980s computer is enough of a reward. They're members of the Toronto PET User's Group, a group of Commodore loyalists that have stuck with their favourite computers as they moved from the cutting edge of the 1970s to the dustbin of computer history.

Once a month, the group gathers to swap files, share hacking techniques and troubleshoot several generations of Commodore systems, from the early PET (or Personal Electronic Transactor, a clunky green-screened desktop) to the VIC-20 and the more sophisticated 64 and Amiga. Mr. Luff is the president; it says so on his cards, printed neatly on an archaic dot-matrix printer. "Our main motto is to support and be there for anyone who's new to the market," he says.

At this meeting, one such young man, Kirk Zathey, 15, sits to the side listening keenly in a black leather jacket. Then there's Leif Bloomquist, a neatly assembled thirty something. "I'm an engineer, and I've got a strong sense of wanting to tinker with stuff," Mr. Bloomquist says. "The old computers are a fun and cheap way to tinker with things. And if you blow it up, you can find a replacement on eBay for like five bucks."

But while there's a trickle of new members, the group on the whole is in a slow decline. TPUG was founded in 1979, and at its height in the mid-eighties, Mr. Luff says, it had more than 20,000 members. Its convention, the World of Commodore, was held in the International Centre. At this year's convention, taking place this weekend at Alderwood United Church in Etobicoke, they don't expect to see more than 100 attendees. (And tonight they have to be out in time to clean up for a Sunday-school class.)

It's a strange fate for a computer that in the eighties was nearly ubiquitous. Commodore's PCs were hugely successful, affordably priced at around $600 and popular for games and business use. The 64 still holds the Guinness World Record for sales of a personal computer: 17 million units in its long lifespan from 1982 to 1994. The original World of Commodore convention was run by the company, until bad business moves and the onslaught of affordable IBM PCs sent it into bankruptcy. But three years ago, the members of TPUG decided to revive the convention -- albeit on a smaller scale.

Many are long-standing Commodore enthusiasts, dedicated members from the past who are still seeking new applications for their archaic computers. Nostalgia and a sense of computer-whiz community has kept them going for nearly 30 years. There's a friendly atmosphere to the meeting, as members crack jokes decipherable only to the true 8-bit fans.

"It's obviously a lot of camaraderie," Mr. Bloomquist says. He hadn't heard of TPUG before 2003, but his own tinkering earned him not only a welcome to the group but the title of webmaster. "One thing I always wanted to do was hook my 64 up to the Internet," he explains, "and now I actually have the design and engineering background to do it. So I did it." And he found he wasn't the only one; soon, an army of other Commodore 64s made contact with his special Web server. "Within a week, I had 2,000 callers," he says.

Going online with a decades-old computer -- today's $600 desktops are thousands of times more powerful -- is no small feat, and the motivation for Mr. Bloomquist and others is a mix of novelty and nostalgia. Computer fans are enjoying the eighties revival as much as anybody. For the generation born in the seventies, computers and gaming are culture. Machines like the C64, which had one of the largest game catalogues of the decade, are a big part of their past, and now they want to reclaim it.

Many use emulator programs, software that can translate the original code of beloved titles into versions they can play on a current PC. But for others, there's nothing like the tactile experience of an original machine. If they're lucky, it means dusting off the old machine from their basement; others seek them out from garage sales or on eBay.

After the meeting, as a howling Boy Scout troop clears out of the church's gymnasium, member John Easton describes the upcoming show. He imagines it filled with tables, vendors, and televisions airing programs like Bits and Bytes, an eighties computer show on TVOntario that was hosted by Luba Goy. As well as being a volunteer at the church where they meet, Mr. Easton is one of TPUG's original members and, at a sprightly 74, also one of the oldest. He first got started on the monochromatic green screen of the Commodore Pet through his work at the Ministry of Education.

"So we've still got a PET library, although very few people are looking for things like that any more," he says. "But the PETs did wonderful things. This whole church ran on PETs for years."

Back in the meeting room, members are still chatting and arguing over decades-old lines of code. Mr. Easton shakes his head. "This always happens. I have to kick them out now, and then they'll go and talk in the parking lot for an hour!"

The World of Commodore runs today from 10 a.m. to 10 p.m. at Alderwood United Church, 44 Delma Dr. ($10, families $15). http:/www.tpug.ca.

Geeks click on a technology icon Michele Henry Toronto Star

Devotees of the seminal Commodore 64 gathered last weekend to praise the majesty of their PCs, poring over manuals and swapping stories,

Dropping his ears close to the motherboard now and then, Greg Nacu fiddles with the guts of his Commodore 64 laptop computer like he's tinkering with the engine of a car.

Once the pride of 1984, the hulking dinosaur lies open on a table in the basement of a westend church as the 25-year-old hooks it up to an equally archaic 13-inch monitor. It doesn't work right away. But that's just fine for Nacu, a computer programmer from Kingston, who's been using his laptop exclusively since he found it hidden under his parent's bed more than a decade ago.

Being able to troubleshoot with ease is one reason he's crazy about his Commodore. "It's just like a car," the ponytailed man says, referring to the entire line of primitive, personal computing machines, specifically the suitcase-sized box before him.

"All you have to do is pop 'em open and listen. Oh! there's a problem with chip CI #2, so you just slip in another chip -- that's the best thing about these computers and it's cool in a geeky sort of way."

More than 75 others share his sentiments. Their love of the yellowing clunkers is what brought them to Alderwood United Church, near Sherway Gardens Mall, last weekend for the World of Commodore 2006 conference.

Coke-bottle glasses, floodpants and a kind of tech-testosterone were in ample supply at the annual Toronto PET User's Group conference, which draws Commodore 64 fanatics from all over Canada and the U.S. to revel in what is now seen as nascent technology. The Commodore PET, unveiled in 1977, was billed as the world's first personal computer. Even so, the Commodores were in production until the early 1990s.

Formed in 1979, TPUG is known as the second-oldest Commodore 64 club around and is dedicated to talking about, playing with and worshipping the computing equivalent of Ford's Model T.

Wearing "I ♥ My Commodore Computer" buttons on the left side of their shirts, TPUG members flocked to the event to swap ideas, ancient DOS manuals and obsolete computer parts, such as the floppy disk drive.

Many user group members are more than mere hobbyists. Leif Bloomquist, 33, has been crazy about Commodores since acquiring his first in 1988. Hovering beside a black screen blinking with a line of fluorescent green text, he says he's here to corraborate with like-minded individuals about a special project -- getting Commodore computers to communicate with one another over the Internet.

"I had this idea when I was 15," says Bloomquist, a contractor to the Canadian Space Agency who's involved in writing software for the next Mars mission. "I can now take what I've learned back to the computer I started with and do all the crazy ideas I had as a kid. We can create things now that were impossible 20 years ago."

Some enthusiasts, like Joe Palumbo, prefer to remain in the past. The 39-year-old, who sings the Commodore's praises at every opportunity, remembers fondly when "science fiction came into his home" in the late 1970s. To this day, he uses a Commodore 64 to run his small business. He sells Commodore parts.

"It was a giant leap," Palumbo says, of owning such a device, "and being able to program it . . . I was God." He adds that another advantage of living in this bygone era is that the technology of the best-selling single computer system never changes. About 17 million units were sold.

> *"I wish Commodore 64s were still alive. The rest of the industry is so boring" - Programmer Greg Nacu*

Erik Kudzin, an electronic technician, who drove in from Chicago to attend, says it's liberating to be freed from the shackles of having to keep up with the latest, increasingly pricey and complicated hardware. "You can pull your hair out trying to use the computers nowadays," he says, from a room filled with vendors selling past-their-prime games such as Jump Man, old joysticks and even a Commodore 64 in its original 1982 wrapping. "And, it does what you want. These are from a simpler time."

Waxing nostalgic about his childhood Commodore, Rob Adlers, a Toronto software tester, came to show event-goers that these devices, which long ago joined banana hair clips and Pac Man in the history books, have a purpose in today's world.

He demonstrated how the Commodore's SID (Sound Interface Device) can be used today by DJs looking for the grainy, retro sound only this type of computer can produce. "It gives them a new life," he says, as a handful of people gathered around a small television nearby.

They watch with folded arms as a TPUG member shifts a joystick to make a pixelated man run through a maze. In another part of the room, a computer screen comes to life in front of Nacu, who hopes there will one day be a Commodore renaissance.

"I wish Commodore 64s were still alive," he says, as he types **LOAD "*",8,1** onto the screen -- it's the most common first command the defunct computers understand. "The rest of the industry is so boring. The Commodore has personality."

Like a Holy Grail for the techie crowd, the World of Commodore 2006 conference attracted afficionados of the incredibly popular personal computer, first released in mid-1982.

The Commodore 64 continuum   Shane Schick IT Business

Other vendors should be so lucky to have this kind of following

You could almost hear the reporter's commentary behind the stories in mainstream media this past weekend about the Commodore 64 user conference that took place in Toronto. "Aren't they charmingly weird?" was the consistent theme. "These are the last of a species," went another. Even the headlines - "They adore their 64's" allowed newspapers to rehash an old advertising slogan while making the point that "they" are somehow different from the rest of us.

But we were all Commodore 64 users once. Either that, or the Pet, the Amiga or the handful of other IBM PC precursors. One day, in fact, there might be a substantial coterie of the IBM PC fanatics, now that the line has been sold off to Lenovo. Instead of merely profiling these communities, however, the media managed to make the Commodore 64 crowd look more like a support group for users who couldn't get past their addiction. There they were, making plans in an old church basement. There they were, attempting the equivalent of putting a Ford Model T in the Formula 1 by connecting their Commodores to the Internet.

There is a discernable barrier between the readers and these Commodore users, one which treats the latter as an study in anthropology rather than a segment of the population with whom we could empathize. Perhaps because their skills seem far removed from that of everyday people, we aren't invited to think long about why the Commodore 64 attracts such loyalty. If you're not prepared to write it off as nostalgia or obsession, however, I think you'll see something else: a product line whose maturation made it adaptive rather than obsolete.

Imagine, instead of resisting the changes brought upon by enterprise resource planning systems or business intelligence software, users actively sought out new processes to which the technology could be adapted. Think about what it would mean if enterprise users did not simply ask for an upgrade to their current systems but instead did everything they could to extend their value. There is something about such an attitude which is at odds with the rest of the industry, which sometimes uses "innovation" as a cover for products that don't necessarily need to be replaced. Even if we haven't personally touched one since we were teenagers, we know enough about the Commodore 64 and their brethren to recognize the characteristics of such enduring technologies. They are very easy to manage, marketed at the consumers who are usually subjected to enterprise tools that were given little in the way of usability testing. They are cheap, if only because they are so old. They are also usually the products of companies that have since went out of business or abandoned them, which frees the remaining users of the pressure to upgrade to something more complex and expensive, and draws them together to share expertise.

Just as car owners have a harder time understanding what's going under the hood today, a lot of hardware is becoming far too sophisticated for the average user to tinker with them the way they might a Commodore 64. In that sense, we may be nearing the end of an era. But the notion of teaching an old IT new tricks - I hope that's not solely the provenance of people on the fringe. I hope it's not an outlook for which we'll one day be nostalgic.

sschick@itbusiness.ca

>> from page 4 ... Joe's World

For another example, STA means store the accumulator. There are 7 ways of doing this:

STA 123 will store the contents of the accumulator into memory location 123, with a 2-byte instruction in this Zero Page addressing mode.

STA 345 will store the contents of the accumulator into memory location 345 with a 3-byte instruction in this absolute addressing mode.

There is no direct addressing mode for STA.

RTS returns to BASIC, produces byte 96 in what is called the implied addressing mode.

TAX loads .X with what is in .A
TAY loads .Y with what is in .A
TXA loads .A with what is in .X
TYA loads .A with what is in .Y

There are very many other assembly language instructions.

Many programs are included in the computer, and can be accessed.

Examples:

```
1200 for i=0 to 15: poke 53280,I
1210 for j=0 to 3000: next
1220 next
1230 for i=0 to 15: poke 53281,I
1240 for j=0 to 3000: next
1250 next: goto 1200
```

Type run to get it going, press the run/stop key to stop it.

Joe Quittner, TPUG April 19, 2007

Books on 6502 Machine Language on-line

Machine Language for the Commodore 64
by Jim Butterfield

 <http://project64.c64.org/misc/ml4c64.zip> (Text)
 <http://project64.c64.org/misc/mlcom.zip> (PDF)

Machine Language for Beginners
by Richard Mansfield

 <http://www.atariarchives.org/mlb/> (HTML)
 <http://project64.c64.org/misc/ml-bgnr.zip> (PDF)

The Second Book of Machine Language
by Richard Mansfield

 <http://www.atariarchives.org/2bml/> (HTML)

6502 Assembly Language Programming by Judi Fernandez, Donna Tabler & Ruth Ashley

 <http://project64.c64.org/misc/6502alp.zip> (PDF)

Mapping the Commodore 64 by Sheldon Leemon

 <http://project64.c64.org/misc/mapc6411.zip> (Text)
 <http://project64.c64.org/misc/map64.zip> (PDF)

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Machine Language Seminar followup …

It occurred to me today that I did not really have the time to go into any depth at the end of the last TPUG meeting in my short assembler vs. basic demonstration. So, I give you this.

The program, is a simple program, it takes an array of bytes, reads them, and adds 1 to them.

```
//c-like code
for (int i=0;i<1024;i++)
{    array[i] = array[i] + 1;}
```

The example I showed in Basic was to read every byte in memory where the screen is stored, add 1 to it, and stuff it back, so we can see it happen.

```
10 FOR I = 0 to 1023 : POKE 1024+I,PEEK
(1024+I)+1:NEXT I
```

What I will do, is show you the assembler version of the code, with a newer (slower!) basic version beside each line, this way I hope you better understand the ML code I wrote. On the left, is the assembler code, and on the right is the basic equivalent. Of course you enter the basic equivalent and it will do the same.

```
$C000 LDX #$00        10  X = 0
$C002 LDA $0400,x     20 A = PEEK(1024+X)
$C005 ADC #$01        30A = A + 1
$C007 STA $0400,x     40 POKE (1024+x),A
$C00A LDA $0500,X     50 A = PEEK (1280+X)
$C00D ADC #$01        60 A = A + 1
$C00F STA $0500,X     70 POKE (1280+X),A
$C012 LDA $0600,X     80 A = PEEK(1536+X)
$C015 ADC #$01        90 A = A + 1
$C017 STA $0600,x     100 POKE (1536+X),A
$C01A LDA $0700,x     110 A = PEEK (1792+X)
$C01D ADC #$01        120 A = A + 1
$C01F STA $0700,x     130 POKE (1792+X),A
$C022 INX            140 X = X + 1
$C023 BNE $C002      150 IF X < 256 GOTO 20
$C025 RTS            160 REM NO LINE NEEDED,
ADD A "RETURN" HERE IF YOU GOSUB'ED THIS
```

The ML code shown, executes quite fast, probably in about 0.05 seconds or so (maybe 2 screens worth) whereas the basic code is **quite** a bit slower. Sure, there are **many** other ways we could write this in ML, but I chose this more direct way. Any other way probably wouldn't translate well into equivalent basic (let's see some of that self-modifying basic code! ;-)

The astute observer will notice that there is no range protection in the basic code, if the value in the array of locations 1024-2039 is 255, adding 1 to it will try to poke a 256 into a location. That will of course generate ?ILLEGAL QUANTITY error. In ML, we are using 8-bit registers, which gives us (in this case the advantage) of not having to worry about this. 255 +1 in ASM = 00. (255 in 8 bit binary is 11111111, add one to that , and it becomes 00000000) In basic we could AND everything with 255 (0xff) to ensure it stayed between 0-255 but that goes beyond the scope of it as "psuedo code" or its explanatory purpose. I also purposely left out the "CLC" (clear carry flag) for the same out-of-scope reasons.

On another 8 bit note, you notice that we can, in basic directly address 1024+1024. In assembler, using the X register, we can only access 256 bytes. So, X = 0, LDA $0400,x is reading from $0400 (1024), and if x = 255, lda $0400,x (1024+255) is reading from 1279. That's why we have to read from $0400,$0500,$0600,$0700 in that loop.

Anyways,

I hope this sheds some light and furthers the demystifying of ML for those who don't understand it. For those who do, go easy on me if I screwed up ;-)

James Long

Chickenhead Canadians Commute and Checkout Cincinnati Commodore Computer Convention 2007

The month of May. Days lengthen, snow melts, flowers start to bloom, and thoughts of winter suddenly turn to … the C4 expo! Yes, with the warmer weather come the warmer thoughts of the current year's expo schedule. First on the list is the **Cincinnati Commodore Computer Club expo 2007.** This year's expo was quickly dubbed 'C4' both by the public and the organizers. The expo was organized by Mark Gladson and Dave Whitmer, and was full of fun, excitement and the usual Commodore craziness we expect from these shows!

THE TRIP

We usually start out on Friday morning with up to five of us in the truck, and Joe Palumbo driving. Joey runs JPPBM Products by Mail, which specializes in Commodore items, including the famous Super Snapshot cartridge and 1581 drive kits. This time, I was the one that was late deciding (due to passport complications) and arriving at Joey's place. Usually I'm not a 'last-minute' person, but I couldn't pass up the opportunity to check out the sights and sounds of a Commodore convention. The truck was full this time with me, Joey, Paul Palumbo, Leif Bloomquist and Ian Colhoun all pumped up and excited about the weekend.

We arrived in Windsor in the afternoon. The usual routine is that we stop at the McDonalds restaurant for lunch. It is located right at the Ambassador bridge in Windsor. The stop also allows Joey to check his paperwork before getting it stamped at the customs office, which conveniently was just across the street. After a stop at the duty-free, we are on our way. Crossing the border means showing a birth certificate, passport or other identification to the boarder guard. Usually, they wave you through. If they do ask questions, it helps if the guard knows about vintage computers or the Commodore 64. I was worried however that he would ask us where we were going. It probably would sound like this: "to the C4 expo", "C4? Is that like plastic explosives? OK, outta the truck!" Anyway, we had no trouble and were then on our way.

SHOW MORNING

The show was held at the Drawbridge Inn just outside of Cincinnati. The Drawbridge Inn is a hotel disguised as a castle, very interesting. Medieval themes abounded: cobbled sidewalks, ornate brick, a fountain near the front desk and meeting rooms with names like "Canterbury Hall" and "Citadel Hall". The C4 expo was in the "Friars Hall".

The show started precisely at 10 am! Well, not exactly. None of these expos start precisely on time, and the Cincinnati club keeps things pretty informal and interesting.

The computers are always along the wall (to take advantage of the power plugs), lined up with color monitors flickering and displaying the newest and oldest Commodore utilities and games. Even the room smelled of vintage computers (there's nothing like the smell of baking MOS chips in the morning!). A quick check of these classic Commodores revealed things sticking out of them that weren't even considered back in the day: Ethernet cables, connectors, flash cards and various projects for show and tell (we brought along Brian Lyon's multi-game cartridge for the VIC-20 for demo and show), plus RAM expanders, CMD drives and Super CPU's to speed things up just a tad!

The show is always filled with new faces as well as familiar ones as well. Jim Brain showed up, and the show gave him the chance to catch up on some projects (the PS2 to C64 keyboard adapter was one of them), as well as discuss future ones.

Eric Kudzin and Jim Mazurek showed up from Chicago. Eric's great for bringing hope out of hopelessness, and this year the object was Glen Holmer's repairable power supply. It was dead-on-arrival, but with a little electronics know-how and a soldering iron, Eric managed to restore it to working condition.

Lori and Andy Maher were there. They had a very nice collection of Commodore calculators including a Commodore 202 adding machine. Running my fingers over the keys, I could imagine some poor desk clerk back in the 70's calculating the balance sheets on this vintage gem!

Jeff Ledger was there doing a demo of a Propeller board that is hooked up to a VIC-20, another example of the new meeting the old. Oliver VieBrooks was there catching up on some coding (he coded the official C4 2007 demo tag), and Robert Bernardo of the Fresno club (with camera in hand), flew in from the west coast to enjoy the C4 activities.

Dale Sidebottom was there. He brought his C128D, Super CPU, RAMLink, CMD hard drive and CMD floppy drive. The purpose? All were used to make t-shirts! A big yellow t-shirt press stood by, and Dale employs GEOS and the C128D to make the decal that is applied to the t-shirts. A pattern soon emerged that featured the C= symbol, the C4 logo and your picture on a t-shirt. This t-shirt pattern

soon became the theme for the weekend, a great souvenir of the C4 expo.

SHOW AFTERNOON

Everyone seems to go to these shows for various reasons. Some to catch up on the latest hardware/software made for the C64, others to chat with friends they meet online, others to score some obscure Commodore item off the free table, and others to discover that long sought after treasure in the Cincinnati Club's banker boxes. When the Cincinnati guys put on a show, all of the above applies. I usually divide my time between chatting, discovering, learning and browsing.

Part of the fun of going to the US shows is that I often come across Commodore items that were exclusive to the US market, but not the Canadian one. For example, Magnavox monitors are common at US shows, but never found in Canada. Third-party items such as power packs don't turn up that often in Canada, but oddball Spinnaker software titles do since Spinnaker was located in Canada. I'm sure the guys that travel to World of Commodore get quite a kick out of our Canadian Commodore software variations with the "Le jeux pour le Commodore 64" on the box!

I found a Data Master cassette drive on the Cincinnati club's table, something not seen in Canada. Now, I'm not one of those people that dislikes tape drives. The slow load time doesn't bother me at all. I simply type "LOAD" and then "PRESS PLAY ON TAPE" when prompted, and go fix myself a snack or something. When I return, the program is ready to go. I type "RUN" and away I go. So this tape drive was a prize for me!

SHOW EVENING

In the evening we all piled into cars to head to the restaurant. The sky was getting dark as a storm was approaching, but the mood in the restaurant was sunny and festive. There was lots of great food and post-show talk. I went back for seconds, thirds and even fourths (yeah I know, shame), but how can one resist the heaping portions that were offered at this buffet? And besides, on this evening the C4 expo is about good food and good times!

Later on we made our way back to the Drawbridge Inn to continue the evening's activities. These are always informal, but always interesting. The vendors were still making the odd sale, and people were still browsing the ever popular free table. Probably the most interesting event occurred on *c64friends*. C64friends is the online chatroom for Commodore aficionados that want to chat and share ideas. I recently joined these chats (codename Masher) and was pretty new to it so I was watching the chat on Glen Holmer's (ShadowM's) computer to get the gist of it all. Snogpitch and Hellion_1 are talking. Brain, Dragos and Schema are chatting. JPPBM chimes in. Then I realize: most of these people are all in the same room! Amazing, normally they are hundreds of miles apart. It was surreal. And of course, the ones that weren't at the C4 expo were saying things like "how's the show going" and "I wish I could have been there!"

At 2am, I'm getting tired, but activities were still occurring. An aggressive game of two-player Artillery duel had just wound up, and repairs were still going on over near the soldering station. Occasionally someone wanders over to the vendor tables hoping to find an item they may have missed the first time. Jim Brian is conducting an impromptu talk about his latest project, and Joey is making deals in the c64friends internet chatroom. Over in the corner a couple of kids are playing Spyhunter on the 64. They're up way past their bedtime, I thought. But then again, this is a Commodore Computer show. The same could be said for everyone else in the room!

NEXT DAY

Well the hardest part of the trip is not getting there or getting back, its saying goodbye. As with all Commodore expos, they're way too short, and the C4 expo was wrapping up. But there's always the possibility of last minute surprises. This year it was: Dale's free giveaway, the Cincinnati Club's free giveaway, and someone rolled in an original Commodore filing cabinet for all to see. Sales occurred right up to the last minute. The freebie table was reduced and even the table itself was offered for free! We packed up Joe's truck for the trip home (we're experts at that now!), and said our goodbyes until next time. The C4 expo 2007 show was over, but a great time was had by all! Bye all!

Greg Van Laere

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