SHARE-WARE - Laughter, Inc.

A Typical First Year Commodore User:

"HIT ANY KEY TO CONTINUE"
As the old year begins to "wind down", another New Year looms for CUGS. Only the exec's determined to "beat the clock" on a few things. Any club has to offer its members new and exciting things to encourage attendance at meetings and more participation in sharing. CUGS, I think, has been trilly blessed: 1) these many years we've had a keen, versatile executive whose principal driving force has been the knowledge that the C64 (and its big brother 128) have always been and still are the best computer buy around. You can spend more for a computer that will do more, if you're willing to spend considerably more time learning how! (Sorry, I promised myself I wouldn't get carried away.)

On to the 2nd blessing: our newsletter has not only continued to be the largest, most dependable source of local C64/128 info, IT'S GROWING! Also, careful perusal of its pages will bear witness to the fact that it truly contains CONTRIBUTIONS...regularly...by club members! Where other club's seem to struggle to produce a monthly rag, your editor is pleased to report that we actually get articles from club members - often sufficient to make me feel guilty about omitting one to allow me room for my own comments. It's great - but keep it up! And 3rd, we have a regular and faithful group who attend our meetings, real computer users who are anxious to grow in their understanding of the machines by sharing what they know with each other.

So what's this about new? Well, this issue of the MONITOR begins a series on FURNITURE and accessories designed to make computing convenient and comfortable (thanks to Steve Bouges). And, don't be greedy! Share Steve's offerings with those poor misguided souls who use other machines. Although Steve's designs are intended for the C64/128, much of the advice and some of the construction projects will be useful to them as well.

Also, we're continuing our series on CONAL. If the response is slight we'll keep it light - just enough to whet an appetite or two. With a little encouragement we'll expand it to fully cover this remarkable language.

Also, beginning next meeting, we'll take a look at some of the things you can ADD to your setup to make it even more useful. The kickoff comes with Gord Williams' presentation on a control module that can be programmed with the C64 to run your household.

And that sets the stage for ANOTHER exciting year for CUGS members, one filled with new discoveries and new vistas for our beloved C64/128 machinery! And you can be part of it - re-read last month's editorial and take that step - become an executive member. Sure, the nominating officer will have a list of nominees, but gaining "office by acclamation" can become gaining office "by apathy" - and that spells the beginning of the end for any group.

RUMOR SQUASH #176883.3 - Any literature speculating on the future of computing passes on the C64, predicts its imminent demise, but covers itself by reminding readers that it's been declared dead before. 11 MILLION USERS worldwide have no knowledge of it, and are ignored. As long as there are people using its machines, willing to share their discoveries and efforts, the discoveries WILL continue and their efforts will be repaid with renewed interest by other users.

In summary, I've used and programmed Apple, old Commodore, Radio Shack and MS DOS, and still "I ADORE MY 64!"

As I said when I began some three years ago as editor of this noble rag ... Keep Computing ... and Keep Coming (to our meetings, that is!)
November Nudge

President's Address

This meeting is the second presentation of our software preview. Hopefully, you will get a chance to see what is available in software and, for a change, be able to decide about software based on your experiences with a program rather than reading the articles or hearing about the program from somebody else.

Tonight's meeting is also election night. It is your chance to get involved in CUGS by joining the executive. If there is something you don't like about what is happening or if there is a direction you would like to see CUGS go, it is your chance to get involved in the executive and help plan the activities for next year. This is the second year that membership in CUGS has been over the 50 mark (from 35 the previous 2 years). Having more than 50 members is a very commendable feature of our club and I would bet it puts us at near the top of membership in any computer club in the city. However, to maintain this number, our club must offer a variety so that everyone can find something of value by being a member of CUGS. Each member has a duty to help foster the growth of our club by coming out of the woodwork and offering their expertise, and/or their experiences to our club. This involvement may take many forms. One example could be writing a review of a program or a book for "The Monitor", or writing an article about some aspect of computing for "The Monitor". The involvement may take the form of offering programs that you have that are not in the library to the librarian for inclusion in our disk library (you will be rewarded here by swapping for disks of programs you want). Your involvement may be a presentation on some aspect of computing at a club meeting - describing a program, explaining a programming feature etc.. At a minimum, your involvement should be attending and being heard at meetings, leaving messages and bulletins for others on the bulletin board, and promoting CUGS to non-members you know. The strength of CUGS depends on the active participation of its members. The more active each of us becomes, the stronger CUGS will become. With the aim of strengthening our club and meeting the needs of more members, a questionnaire is being prepared to get from the members your feelings about a number of issues. Please take the time to respond to this questionnaire when you receive it so that decisions, that will meet as many of your needs as possible, can be made. If there are any special interests you wish to see pursued in the questionnaire, leave a bulletin or E-Mail on our bulletin board with your suggestions.

Memberships Due:

CUGS Memberships are now coming due.

Fees: $10.00 per year (Jan. - Dec.)

A $5.00 per year additional fee is added to cover the cost of mailing for members who are unable to attend the meetings but want to enjoy the other benefits of CUGS.

Benefits: CUGS MEMBERS ...
..meet once a month with other Commodore Users.
..a chance to share ideas, ask questions, learn what's new, etc..
..receive the monthly newsletter - "THE MONITOR".
..have access to the club's disk library.
..have access to the club's bulletin board.
..receive discounts at Software Supermarket & TTL Computer Concepts.

(membership card must be shown)

Scratch III Save

by Earl Brown

Woe is me! For over a year now I have been using a Osborne or a 128 with a parallel Epson FX-80 printer and a Xerox SuperColor interface. With the 64 and PaperClip II this combination worked fine. The printer worked properly and flawlessly. However, up until last week I decided I'd rather like to use a word processor with my 128. But PaperClip didn't accept the dongle in port one (where it is supposed to go). I wrote Electronic Arts to inform them of my dilemma and awaited a reply, and I waited and waited and waited. Meanwhile I managed to pick up a used version of Paperback Write at the Computerfest. This version would not always load for me, so I jotted off a note to Digital Solutions about my problem and they advised me that for a quite a few more bucks I could have the version replaced with the new Pocket Writer 2 or for a mere twenty bucks I could also get Pocket Filer 2 and Pocket Planner 2. The combo sounded better so I told Bart about it and, lo and behold, he offered me almost the same deal (a discount on two in my favor) so I said yes. However the new version wouldn't always load with my 1571 disk drive either. So I took my 1571 down to Software to check out.

Unfortunantly later I find there is nothing wrong with my disk drive. As long as I loaded Pocket Writer or Paperback Writer from a cold computer, it always loaded fine. So that's what I do now. My problem is not covered by my warranty. It seems that the Epson in Pocket Writer 2 does not trigger the carriage return of my printer and everything prints on the same line. Not to worry, I decided. Just load Pocket Writer 2 as usual and use the printer file on the original Paperclip II disk. No lo and behold, I still had problems. To top it all off I got an absolute advertisement, a method in which I can make copies of my own Pocket Writer 2. Wonderful, I thought. I'll just get it, back up my disk of Pocket Writer 2 and then scratch the Epson file from this copy and replace it with the one from Paperback Writer. Right? Wrong!

For starters, my 1571 will not make a backup of the program. So I took the programs down to Software one evening and, using their 1280, I managed to make a backup of the Paperclip II disk. I loaded this disk home with me and successfully loaded the copied version into my computer. All I had to do now is scratch the Epson file and replace it with the other one. Damn! The process of transferring the new file corrupted the entire disk. Here I was all over again where I started. I concluded the problems I'm having must still be in my disk drive and I have to wait for the ROM chip I've had on order. After many months, it finally arrives and I replace it "Boot Sweet". But damn and double damn! I still can't get the copy program to work for me.

In the meantime, guess what? I get a letter from Electronic Arts advising me that for a mere twenty bucks and my old PaperClip manual cover, they will send me the latest version of PaperClip III. Well, after losing my wallet and recovering from all the bucks I've already spent, I sent away for the new PaperClip III. It arrived day before yesterday.

The good news is I no longer have to use a dongle with PaperClip and the disk is easily backed up. The bad news is MY EPSON PRINTER TRIPEL SPACE'S instead of single with the Epson File. Since it is written in ML, I have no idea how to modify it to get rid of the extra carriage returns. If any of you have any ideas for me, let me know. Else I'll have to jot another letter to Electronic Arts and waste forever for a reply. It's almost enough to make a grown man cry.

We have three disks added to the library this month.

1. Cugs Gazette disk #28 (includes Aug., Sept., Oct., Nov. 88)
2. Graphic 13 #OM
3. Graphics 14 #GN
EXPERIENCES WITH THE 1750 REU

"How I figured out a practical use for the silly thing!"

By Shaun Hase

After messing around with my 1750 Ram Expansion Unit for over a year now, I have finally figured out how to use it as a RAMDISK, sort of. It won't do file swapping between the physical drives and the REU, but it helps a great deal when you fiddle-program as I do. The practical side of this is that the theory can be used to write programs that load other programs, or modules, onto themselves from the REU. The fun side is that 64k programs get loaded into memory, after setup, in no time at all.

What do you need, besides a 128 and a 1750 (1700)? Well, a piece of paper and a writing utensil, a calculator (although the computer will do), patience, and some basic math skills. Oh, yes, and two reprogrammed function keys. These should be set up as follows:

key1 = peek(464) + peek(465) * 256 + chr$(13)
key2 = peek(4624) + peek(4625) * 256 + chr$(13)

A table should also be constructed, on the paper, consisting of at least seven columns, with these headings: HI, LOW, # BYTES, START, BANK, 4624, 4625. Another column could be added for a description of the program stored in the REU. The headings mean:

HI = End of BASIC location (decimal)
LOW = Start of BASIC location (decimal)
# BYTES = Length of program, in bytes (HI - LOW)
START = Position of program in REU, any bank
BANK = Bank number
4624 = Decimal value of memory location 4624
4625 = Decimal value of memory location 4625

Ok, now, here's what you do. A program is in memory and you want to save it to the REU. How do you do it? Press FI and FL to get the program's position in memory, HI and LOW respectively. Now you need the number of bytes the program actually takes in memory, so subtract LOW from HI. PEEK memory locations 4624 and 4625. Next, decide on where the program is to be allocated in the REU (START) and the bank (BANK). Write all these numbers down on your fancy table before starting anything. The numbers for 4624 and 4625 will be used later in recalling your program and it's easier now to figure them out by just PEEKing memory than having to hand-calculate the silly things later. Now, type this line, filling in the words for the actual numbers calculated:

STASH # BYTES, LOW, START, BANK

There, that's all there is to it. The program is now in the REU. But, how do you bring it back? First type NEW:CLR and LIST to make sure memory is empty. If you press FI and FL, the numbers should be 7169 and 7171, respectively (that is if a graphics screen has not been allocated). However, the program you want to load into memory will surely be larger than 3 bytes. So, now what? Here's where the numbers under 4624 and 4625 come in. These two positions hold the end of BASIC location, in a low-byte high-byte format. So, POKE the number in the 4624 column into 4624 and POKE the number in the 4625 column into 4625. To see that you've moved the end of BASIC pointer, press F2. It should be different now, most likely corresponding to the HI value calculated before. Now the computer will see the program loaded back into memory. I tried doing this before, without moving the end of BASIC pointer. The program transferred all right, and was executable, but it couldn't be saved or modified. The computer didn't realize that there was code in memory. It just looked at the end of BASIC pointer and said, "Well, the program in memory is only three bytes long and this bizzo is trying to tell me that there's something else past that? No way am I going to let him do that!" and the computer breaks into the monitor. So make sure you move the end of BASIC pointer. Now, finally, type the following line, again filling in the words for actual numbers:

FETCH # BYTES, LOW, START, BANK

If all went well, the program should be in memory intact, executable, modifiable, and savable. One word of warning. The C-128 should be in SLOW mode for FETCH and STASH operations to function properly. Want a numerical example? Ok...

FL and F2 give you results of 7169 and 16608 respectively. F2 - FL = 9439. PEEKing 4624 and 4625 give 224 and 64, respectively. Write all of these numbers down in your table.

<table>
<thead>
<tr>
<th>HI</th>
<th>LOW</th>
<th># BYTES</th>
<th>START</th>
<th>BANK</th>
<th>4624</th>
<th>4625</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>16608</td>
<td>17169</td>
<td>9439</td>
<td>11000</td>
<td>0</td>
<td>1224</td>
<td>64</td>
<td>method of death</td>
</tr>
</tbody>
</table>

Type: STASH 9439, 7169, 1000, 0. The program is now in the REU. To clear memory in order to load a new program in, type: NEW:CLR and LIST to make sure memory is empty. Now type: POKE 4624, 224; POKE 4625, 64. Check to see if the end of BASIC pointer is moved by pressing F2. The number given should correspond to the HI value. Now, finally, type: FETCH 9439, 7169, 1000, 0. Et voila! Le program est dans le memory. C'est facile, n'est pas?

Come One, COMAL!

by Ken Danylnzuk

First, an apology - if you tried last month's program you might have had a little trouble with my spelling (i.e. you copied my misspelling of the variable Fareheit). Obviously, having the ability to create variable names up to 78 characters in length does have one drawback - ya better watch yer spelling!!

I'll keep this kind of brief, because we're running to several pages now. I promised a look at some of the COMAL commands that make sprite and graphic use a little easier for the novice. Well, how many of you ever wanted to design a little moving sprite with some simple animation? How many of you actually did it in BASIC 2? How many of you did it using a graphic aid, but couldn't figure out how to use the sprite afterwards in other programs (BASIC)? How many of you would pay me big money to find out how....? Oooh! 'Scuse me, I got a little carried away.

COMAL 0.14 offers several graphic and sprite commands, including (but not only) full turtle graphics. I'll omit the turtle graphics for now and just deal with some of these:

<table>
<thead>
<tr>
<th>FRAME</th>
<th>CLEAR</th>
<th>SETGRAPHIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SETTEXT</td>
<td>BACKGROUND</td>
<td>BORDER</td>
</tr>
<tr>
<td>FILL</td>
<td>FULLSCREEN</td>
<td>SPILITSSCREEN</td>
</tr>
<tr>
<td>SPRITETYPE</td>
<td>SPRITETAB</td>
<td>SPRITECOLOR</td>
</tr>
<tr>
<td>SPRITETYPES</td>
<td>SPRITEXID</td>
<td>IDENTIFY</td>
</tr>
</tbody>
</table>

The following example of a sprite with simple animation is an excerpt from a longer tutorial on animation in a newsletter from the COMAL USERS' group in the U.S.
BBS Business:

Last month I outlined a few of the features of the Bulletin Board System. If you haven’t called, yet, do so. The more who are involved, the more fun it is. The board is available 24 hours/day and 7 days/week (except when I put it down to make changes or to take the computers to the club meetings). If you get ’NO CARRIER’ when you call that means that I am messing around with the files. I try to take as little time as possible so please be patient and call back.

As the board operates, shortcomings and changes become evident. To make it easier, I have made a few changes since last month. The major change is that the main menu 'information' file has been dedicated to explaining how to use the bulletin area of the bulletin board. It also contains information about using the color/graphic features of the bulletin board. A major advantage of this is that you can capture this in a buffer and print it out on paper so you have the features available.

The newest version of the BBS has been ordered from the author (programmer). As soon as it arrives, I will be installing it. This will probably involve some changes for those of you who have been calling. Just bear with us and I will try to include explanations for you which indicate the differences (if any).

When I set up board initially, I had to create a number of files. Two of these involved the WELCOME screens for both ASCII and C/G (color graphics). Shaun Hase submitted a welcome screen for ASCII which is now being used. Thank you Shaun. As soon as the new version is installed, we are going to have a contest for the creation of a new C/G WELCOME screen. Watch the CBXS bulletin area for details about the contest.

One last thing that I would like to mention is that I have been accepting MONITOR articles on the BBS. Write whatever article(s) you want and upload it (them) as a sequential file(s) to the board. It saves you the hassle of having to get articles personally to the editor. I transfer all the articles to one MONITOR ARTICLES’ disk. One thing you should realize with this is that anything you upload to the board is “invisible” to everyone who calls. I have to rename a file to make it possible for others to see it so your articles can’t be read before the MONITOR is published. Soooooo... no excuse for articles now!! Sourrrrrrrrr...!!!

Christmas Shopping!

Through the generosity of Bart at Software Supermarket, we will once again giving club members a change to preview what is new in software. Last year we held this in December and although it was well received, many felt it was too late. Bart feels that his new Christmas stocking should be available by November 1, so we will give you a chance to have a hands-on with the newest, latest software.

We will have a number of C64’s and 128’s set-up so you can examine whatever you want.
Ye Oide Booke Reviews:

Title- Commodore 128 Reference Guide for Programmers
Author- David L. Haiseman
Publisher- Howard W. Sams & Co.
Cost- $24.95
Level- Beginner to Intermediate BASIC & M.L.
Pages- 553

This book is for the general user who does some programming of his own in BASIC, and for an intermediate M.L. programmer. Its format is similar to the users guide but provides more in depth information and examples in both BASIC and M.L. (Machine Language). This book pretty well covers every aspect of the 128, from disk I/O to sprite animation. You'll find this book will get dog-eared in a short time, as it is an excellent source of information. The numerous BASIC 7 commands are explained and are shown used in examples. If you are like me and cannot (or will not) memorize every one of BASIC 7 commands, this book comes in handy. M.L. commands are explained in fair detail. Tables of their uses (or misuses) come in handy when your programming in M.L. If you want to know things like - "If I call SFRIO routine, will it affect the X register?", this info is here. In a nutshell, I would say this book is an enhanced and expanded version of the users guide, one that no one should be without.

For the 128 programmer, I give it a rating of a big 8 out of 10.

Title- Machine Language
Author- Jim Butterfield
Publisher- Brady Communications
Cost- $20.95
Level- Beginner
Pages- 326

This is another M.L. book that is fairly good at teaching the 64's M.L. It gives you an idea of the computer's way of working with all the usual OP code definitions, appendixes and tables. It is not really of any use after you've read it a few times. The appendixes are available in most other REFERENCE Guides that are more appropriate for that use. I found the reference material hard to find/locate when needed (after looking in the Table of Contents/Index locating the table required, then asking myself "What was I looking here for??") soon got the best of me. This should not hold you back from buying it, as it does a good job of teaching you the fundamentals.

For beginner 64 "M.L.-ist", I rate this a fair 7 out of 10.
In the last two articles, I examined setting up a title page and printing an envelope using the word processor. In this article, I am going to use the word processor to prepare a business letter. The word processor I am using is Paperclip. If you have a different word processor you will probably find that most of the commands are the same or very similar. There are many different styles of business letter. The one I am going to use works well for me. I hope that any business educators reading this will be very tolerant of me and my 'business style'.

To set up a business letter we first must indicate the paper size, number of print lines used, and the number of margins on each side. However, if the letter is very short (only one or two lines in the body) you may want to extend these margins to 1 1/2 inches. For 11 inch paper use pg54, to insure one inch margins use pg 11 print lines (pg54) and page margins of one inch (pg9). Note: 1 1/2 inch margins are obtained by using pg48 vp9. A right margin of 75 gives a one inch margin (mx75). To start out we want to put the return address in the top right corner. To get the left margin a bit of calculation is required. Count the number of characters in the longest line of each of your name, street, city/province, postal code, and today's date. Subtract the largest of these values from 75 to get the value for the left margin. For example, if your street address is the greatest number of characters at 19 characters, the left margin would be 75 - 19 = 56 (lm56). All these formatting commands can be put on one line which would then look like:

\<checkmark\>ct5p6:pg54:lm56:mx75:vp9

The return (your) address is typed in normally except don't put your name here, start with your street address. Don't forget to put a carriage return mark at the end of each line. After the last line of the address is typed, press RETURN by itself on the next line, this will leave a blank line (double space). Today's date follows on the next line. For example:

143 Birchwood Cres.,<RETURN>
Regina, Sask.<RETURN>
S4S 5S3<RETURN>
<RETURN>
September 1, 1988<RETURN>

Now we have to add formatting commands so we can change the left margin back to one inch and go down an inch or two to the inside address (who we are sending the letter to). The left margin can be set to 10 (lm10) to give a one inch margin. The distance from the date line to the first line of the inside address gives you a great deal of flexibility. Remember that there are 6 vertical lines per inch. A setting of in12 will give a two inch space. A setting of ln6 will give a one inch space. I think the required value is supposed to be two inches.

If there is difficulty in getting a letter to fit all on one page I will change this to any value needed between 6 and 12. If the letter is going to require two pages anyway, I will leave this at 12. The easiest way to check is to set it to two inches and then display the letter on the screen before printing it. If all but your name appears on one page, you may want to change this value and try again. Both of these formatting commands can be put on one line as long as the ln command is last. For example:

\<checkmark\>lm10:ln12<RETURN>
There are algorithms that are reasonably good but not infallible. With AI we could program our game to play TIC-TAC-TOE, but this time give it the ability to learn thru it's mistakes. We can give it the rules of the game and a little bit of initial "intelligence" data and let it play a few games. Soon it will be an excellent opponent.

Perhaps we will see advances in our monitors in the near future, like 3-D holographics. I don't know. I have to give up on trying to keep up with the fast-paced developments that are occurring at a daily rate. The best recourse is to wait until the dust cloud clears in a few years and see what is around. I can tell you that the Odi and 128 will still be here, working, on top of my desktop.

W-W-W-Well th-th-th-that's all folks...

Besides it's 3:00 A.M. an' I got to get some shut eye.....Bye

**ERGONOMICS:**

**ERGONOMICS: A GUIDE TO WORK STATION COMFORT**

by Steve Bogues

Have you had some discomfort after a long period of time when you were working with your computer? Do you have a sore back or other physical pains? If the answer to either question is 'yes', you might unknowingly hurt yourself or causing unnecessary stress to your body. If you think you are a victim of yourself, I may have some suggestions that you could follow to correct this.

The first area of concern should deal with the way you place your body. This is referred to as "Body Alignment". Some areas to examine are:

1) The head and neck should be straight and looking in a forward direction at eye level with the monitor.

2) The arms should be parallel to your body with your forearms bent at a 70 to 130 degree angle and resting comfortably on your keyboard.

3) The back should be supported (especially in the lumbar [lower back] region).

4) The knees should be bent between 60 to 100 degree angle to allow for maximum comfort.

5) The feet should be flat on the floor or use a foot rest to compensate for height differences.

**ERGONOMIC DIAGRAM:**

A second area of concern is the subject of equipment and hardware:

1) Chairs at a very important component to the comfort of the user. A good chair should have the following qualities:

   a) Good back support for the lumbar area.

   b) It should be adjustable to your body type.

   c) If it is a secretarial chair, it is recommended that the 5-caster model be used, since they are less likely to tip.

2) Terminal desk set-up is very important to the user's comfort. Some of the general hints are:

   a) The desk should be at a 90 degree angle to the windows to avoid glare on the screen.

   b) The monitor should be at eye level to avoid neck strain.

   c) A copy stand at about eye level will save or eliminate neck strain.

   d) The keyboard should be at 28" above the floor.

   e) A foot rest can add to your comfort and decrease back strain.

Reference: DATASPACE (developed by the Joyce Institute Seattle, Washington.)

********************************************************************

*   O O P S !   *

* The number for the CUGS BBS is incorrect in the October MONITOR. The correct number for CUGS BBS is 586 1189. *

* Sorry! Richard M. *

********************************************************************

**Next Meeting:**

Wednesday, December 7, 7 pm

Room #1 Northwest Leisure Centre

Featuring: GAS (Graphic Assault System) and a Home Control System
A Known History
An Uncertain Present
Of the Micro Computer Industry
As Seen by Barry Bircher

Last month we looked at the general past history of the computer. This month I would like to lay my 2 cents worth on the crystal ball and predict a future for the computer.

The ENIAC was worth $486,804.22 in 1960 dollars and cost over $460,000 per day for electricity. It didn't really have much RAM as what RAM it did have was used up by the CPU. The temperature was set at 20°K RAM. It was selling for about $695.00, now "obsolete" (in a sense) but was available in 1965 for $50,00. The OS4 with 64K RAM was $795.00 in 1982 and is now selling for less than $500.00. The Amiga 500 sells for about $795.00 with a 3-1/2" disk drive and 64K RAM. This trend is clear that RAM for computers is getting cheaper and cheaper as time goes on.

A person can only guess that the next Amiga will be the Amiga 3000 with a 68030 and a 80386 CPU that will "blow away" any home computer to date. Imagine running OS/2 GUI in one Amiga window while you work on something else. This really is mind-boggling. I'm glad my familiar Amiga 120 is still on my desk, as I could not imagine trying to program something like that and multitask to boot.

As everybody is trying to outdo everybody else, somebody is conducting experiments on superconductivity. It is really too early to predict if this one discovery will dramatically change the current production of IC's, but if all industry indications come true, we may see a dramatic further reduction in the current level of manufacturing small IC's. Let me explain.

As it is now, we have reached a plateau in getting these circuits smaller and still able to function. No matter how small an IC circuit it is, it will be limited in the amount of power it can consume. A watt drain in power is concentrated on the small surfaces of the actual silicon surface, which is, in some cases, smaller than 1 square centimeter. As you increase the power draw, the temperature of the chip rises (and these chips hate to get all heated up). The manufacturers of these chips have to play "give and take" to maximize performance. What I can see as a major improvement in these chips is the elimination of the heat as a factor. Then you can further reduce the size and still get better performance and more circuits to the inch (more powerfull chips). If that fails to materialize then, for sure, we will see better bearings for our disk storage (possibly C-0's?) systems.

What is "Superconductivity"? Superconductivity is extreme low electrical resistance (0.0000 ohms) seen by some material when cooled to a very cold temperature. This means the possibility exists that materials may be manufactured that have no resistance. With no resistance there is no heat produced in a current carrying conductor. If this can be applied to IC's then a major leap can be acheived in the miniaturization of the chips. This, however, is many years from becoming reality.

The other possibility for improving the speed of the chips is to use coherent light that is produced by lasers. After all, light is a form of electromagnetic radiation and is used in data communications now. Currently, chips are using electricity as the medium recording high or low. Eventually, there will be a point reached in clock speed that will be self-impeading, because of inherent capacitance and inductance. If we can come up with a method that can control the wave form of the laser, a light operated ultra high speed CPU may appear in the near future.

Motorola has announced the introduction of their new reduced instruction command set CPU 88000 processors. They say it is the newest breed in processors as the command set has been substantially reduced, and the commands that are supported are optimized. Therefore, they are faster running. They found that 20% of the command instructions were invariably used to do 80% of the common program coding. All the others are extra commands that make the programming easier but run slower.

A trend that can now be seen in the Amiga and IBM PS/2 machines is the ability to multitask, that is, to run more than one program at the same time. Networking is a relatively new term. It is basically a shift towards smaller computers that are connected together via telecommunications lines and the like, as opposed to one large mainframe. That means that you can also access programs and files on another close or distant computer. In the past, a mainframe computer was used (and still to some extent) to access all files. But, as you probably know, not all users are conveniently at a mainframe terminal for one reason or another. It now is a simple matter to have the programmed system up and running on all the computers you need to access. This is of limited use to home users but is a tremendous advantage to larger companies.

The next step I see is parallel processing. The ability to run more than one program in the same computer. Some idea, but with a twist - instead of one CPU doing all the work and dividing it up between each of the running programs, you have a separate CPU and maybe a math coprocessor for each of the programs.

Later on that week.

Damn .... when I say this technology is moving fast, I DO mean it is moving - - - - - - FAST.... Just now I am reading a magazine that just announced a "Transputer" board for the AMIGA. Sounds corny, I know. But it's true, you can now use separate processor with it's own memory to run programs (true parallel processing). The board apparently contains a 32-bit INS T-414 or a T-800 transputer chip running at 15 MHz (almost as fast as the still new Intel 80386 chip at 20 MHz). As well when changing things, a new Q/S is required (O/S = Operating System = a program in the computer that makes the computer act like one). The Company in Germany is working on the "HELOS" O/S for the Amiga and it will have a UNIX-like Command shell.

Also here in the near future is Tandy's new THOR Compact disk storage system. Capable of leaping tall buildings in a single bound. Faster than a speeding bullet... Coops will be computing by TDR (Tandy High-intensity Optical Recording) is Tandy's answer to the possible system to store and erase...yes, I'll say it again, ERASABLE Compact disk system. Capable of storing 500-600 Megabytes of data, that's about 3330 disc's worth of 1541 formatted, fully-loaded diskettes.

As far as programming languages go, I expect to see some parallel processing type programs like the "HELOS" O/S becoming more of the norm. One aspect of today's programming is the fact that the programmer must know what he wants the coding he is writing to do. The programmer can write his code to do what he wants it to do. But is he must envision all the possible limitations, variations and problems that may come up when running the programs and handle them as they come. Artificial Intelligence may play a larger role in programming these beasts. For example, if you wanted to write a program to play a game of TIC-TAC-TOE we would write it so that if, first of all, it follows the rules of the game. Next, get it to play the correct move (s) right after you. Make moves in a game like this are in the thousands and we must program the computer to choose the right one.
just what binary and hex and CPU's are all about. This was the second book on M.L. programming that I bought a Bar's. I like to give credit to Richard Mansfield's efforts in this book. He totally turned me around in my way of thinking of M.L. programming as easy to edit than BASIC (Ha ha, chuckle chuckle). No sooner said than bought. At home I read it from cover to cover, and spent 4 hours typing in L.A.D.S. (using Compute! Gazette's M.L. entry program). If you get this book and want the program, please let me save you many hours of typing - ask me for a copy.

To make a long story short "it works" and, boy, does it work. L.A.D.S. (Label Assembly Development System) is itself a machine language program that looks at your program and builds a table of each machine instruction that resides in BASIC's program text space. This implies that you can list it as if it were a BASIC program. In fact, this is its prime advantage, for it can use most BASIC-type utilities that programmers are so familiar with to help you program. It lets you use many of the utilities, such as MetaBasic, Basic Aid, rename, find and replace, merge, view, scan, and delete, etc. It allows you to document your code (try that in assembly!) so you can make sense out of this nonsense. In short, it is an M.L. programmer's delight! It allows you to relocate your code (not always an easy or pleasant task) by simply changing a number at the beginning and reassembling it. While it assembles it checks for type errors (like logic errors) and reports any errors to screen or printer.

However you cannot simply load L.A.D.S. source and type RUB Gazette's M.L. entry program you will get a syntax error. The coding, like BASIC, has line numbers. However, that is where the similarities end as the rest is similar to M.L. coding.

For beginning 128 M.L. programmers I rate this a BIG 9 out of 10.

Title - Mapping the Commodore 128
Author - Otis R. Cowper
Publisher - Compute!
Cost - $24.95
Level - Intermediate to Advanced M.L.
Pages - 690

This book is primarily a reference guide. It does a very good job of explaining the operating system. The layout is much like a New York Phone book. The addresses (in both decimal and hex) are in bold print along the top of all pages. Each memory address is explained. It gives examples of M.L. when necessary to explain the location fully. A well laid out appendix gives you common and equivalent addresses for cross reference from the 128 and 64, as well as a numerical order index of common routines for Basic and Kernel. It doesn't have much to read as far as articles go, but that is not its real intent. I have found it beside my computer during a programming session many a time.

For the advanced 128 M.L.'ist, I rate this a 10 out of 10!
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