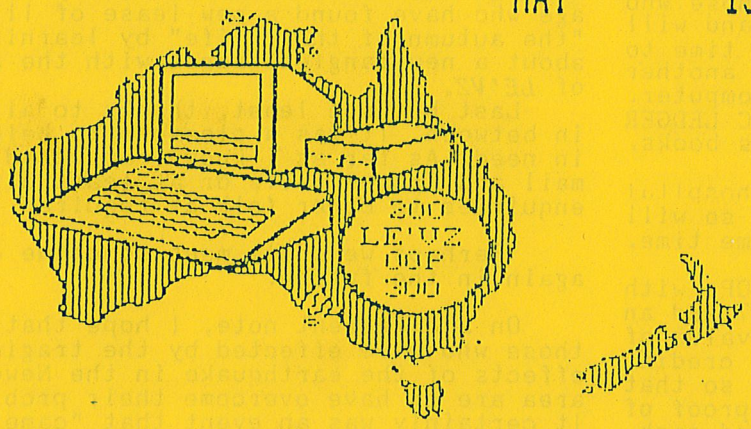
* LE'V2 200/300 *

Ouner's Operators Programmers

** THE SOUTH PACIFIC MAGAZINE FOR VZ COLOUR COMPUTERS **

MAY 1990. #27 A$2.00.



EDITORIAL

Hullo VZers, and others.

As I mentioned in ***LE'VZ*** #26 February 1990, this magazine is the last one that I will be publishing, being #27. I produced #1, a single sheet in June 1984, so this one celebrates ***LE'VZs*** sixth birthday, short of one month.

To reinterate, the number of readers (OOPs) is now very low, about thirty. There are no new OOPs and interest in the great little ***VZ*** is at an all time low. Those who remain are I suspect like myself and will continue to use the ***VZ*** for some time to come, rather than switch to another computer.

I still use my ***VZ*** and my DISC LEDGER programme each week for our business books.

Finally, I will be going into hospital in September for my hip operation, so will be out of commission for some time.

As previously stated, those OOPs with sufficient credit will receive #27 and an Australia Post Money Order to the value of the credit.

I will use an APO Money Order so that there will be no problems with proof of payment. I will not send cash.

Perhaps someone else may like to continue publishing ***LE'VZ,*** please contact me if YOU are interested.

I will continue to sell our software for awhile yet as necessary, see page thirteen.

Remember, there remains other groups and clubs if OOPs wish to keep in touch with ***VZ*** happenings.

I must thank a few people who have written to me to show their appreciation of my efforts with ***LE'VZ*** . These are:- Messrs Bill Babb, Vinod Patel, John Luxton, Graeme Bywater, Brian Greene, Cliff Watson, Rex Gladding, Ian Niedzwecki, Col Paton, Harry Huggins and Joe Leon. I think that's all.

I must also thank all the many software writers who supplied me with so many items for sale. There are too many to mention other than Mr Larry Taylor, Mr Leslie Milburn and Mr Scott LeBrun.

Also special thanks to longtime contributors, Mr Joe Leon, Mr Larry Taylor and Mr Bob Kitch.

I also thank parents who have paid money for their children to become more seriously interested in computing. Thanks also to the older OOPs over sixty years of age who have found a new lease of life in "the autumn of their life" by learning about a new fangled gadget with the aid of ***LE'VZ.***

Last but not least, thanks to all those in between. It was a pleasure to help those in need. As far as I know I answered all mail and 'phone calls or at least directed enquiries to other folk as required.

Perhaps we shall meet sometime or again in the future.

On a different note, I hope that all those who were effected by the tragic effects of the earthquake in the Newcastle area are or have overcome their problems. It certainly was an event that "came out of the blue", but we must thank GOD that more people were not injured or killed.

I now hand over to Joe Leon and Harry Huggins.

Marie and I hope that OOPs and families had a very happy Easter.

HAPPY COMPUTING GOD BLESS 73's
CON DIOS.

John D'Alton.

CONTENTS

LE'VZ 200/300 OOP IS PUBLISHED BY MR J.C.E. D'ALTON OF 39 AGNES ST, TOOWONG, QLD. 4066 AUSTRALIA. TELEPHONE (07) 371 3707.

OUR QUICKWRITE WORD PROCESSOR-TEXT EDITOR IS USED EXTENSIVELY.

FLICKER-FREE GRAPHICS

by

Bob Kitch

Mention the word "flicker" and some people immediately think of the horse in that well known TV series! VZ Users who have played DSE's Dawn Patrol know differently.

Flicker or hash on the VZ screen is that annoying "rubbish" that occurs, particularly on the hi-res screen, whenever anything is written to video RAM (VRAM). It is most often observed when graphics are being used. There are two causes of flicker in graphics -

i/ Critical Flicker Frequency as perceived by the eye. This is a form of "jumpiness" detected by the eye (i.e. physiological) whenever frame rates drop below 50 Hz or 50 per second. Movie theatre projectors and the video screen on the VZ are updated every 20 msec. and so smooth graphics result. Below this frequency, the eye sees a jerky image as is sometimes seen in old movies.

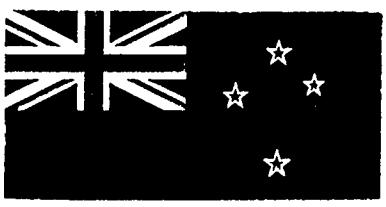
ii/ Video irregularities resulting from display design problems. Flicker or hash in the VZ results from the direct loading of VRAM from Z80 registers. The electron beam of the display scans every 20 msec. independantly of the program intentions. VRAM is memory mapped into 500/2K byte area depending upon mode. Conflicts in the timing of the Z80 CPU writing to - and the 6847 VDG reading from - the VRAM cause the flicker.

Consider the following example to understand the effect. The ASCII code for a character is loaded into VRAM from a Z80 register. The 6847 Video Display Generator (VDG) translates this into the intensity of the electron beam as it scans across the screen. The Z80 does not, and cannot, draw directly onto the screen. This is the job of the VDG chip. A screen is drawn every 20 msec. but the Z80 may load data into VRAM in a fraction of a msec. and at any time. Thus, the Z80 has now idea of where the electron beam is when it updates VRAM. The electron beam scans across the screen many times to form a complete character. As the VDG is updating the screen the Z80 may change the character in VRAM before it is completed by the VDG. (what a confusing mess for the screen to transfer to the eye!). A "split" section of screen scan lines may occur momentarily in this situation.

Ideally, all intended screen updates should take place at an "invisible memory location" or "buffer". At a suitable time, a Block Load instruction can move the buffer into VRAM. This transfer should occur AHEAD of the electron beam.

What is needed is some ability for the Z80 to determine the position of the electron beam on the screen at any given moment.

GOTO 4



It is worth clarifying here, some of the hardware nomenclature used so that readers are quite clear as to what is going on. VRAM and buffer are areas of memory in the Z80's address space. The Z80 CPU can read and write (update) to these locations quite freely. VRAM in the VZ is a fixed area of memory that is also referenced by the 6847 VDG. The location of the buffer is chosen by the programmer and therefore the VDG does not know where it exists. Obviously the potential for conflict, between the two devices' requests for access to VRAM, exists here. The screen or display is a physical device that the Z80 knows nothing about. (the VZ will run without a screen). The VDG and a lot of display circuitry interface between VRAM and the image formed by an electron beam scanning across phosphors. The VDG contains an internal ROM holding a shape table that decodes ASCII into visual images. Once these components are clearly distinguished, and their ability to communicate amongst themselves is appeciated, it becomes easy to devise a solution to their mutual interference that leads to flicker.

The Interrupt (as detailed in my previous article on vectors, interrupts and real time clock) is one such timing pulse that can assist. Every 20 msec. an interrupt signal is developed by the VDG. When the interrupt occurs, The Z80 completes the current instruction and then vectors to the Interrupt Handling Routine. After completion of this routine, the Z80 resumes its previous task. The interrupt pulse originates from the VDG and is notified by *FS line. This is connected to the Maskable Interrupt line on the Z80 which can be Enabled/Disabled by software commands. The important feature of the *FS line going low is that it allows video synchronization of the electron beam location on the screen with the Z80 write-to-VRAM activity. (i.e. exactly what we are looking for) By detecting the Maskable Interrupt event in the Z80 it is possible to time VRAM write-operations such that flicker is avoided. To see how this is achieved, it is necessary to consider how the screen scanning happens.

The VZ Technical Manual and my articles in Sept. and Oct. AEM 1986, provide some insight into screen scanning and the workings of the VDG. The electron beam starts at the top left-hand corner of the screen and moves to the right. In so doing, the VDG puts onto the display, part of 32 characters on the scan line.(this is of course describing the lo-res screen situation). During this time, the intensity of the beam is regulated by the VDG referencing VRAM. A "horizontal retrace" occurs that is invisible - also the beam drops down one scan line (this period corresponds to 8 "invisible" characters being scanned). There are actually 192 "visible" scan lines down the VZ screen. This corresponds to 12 scan lines per line of text. The VDG certainly earns its keep translating 32 ASCII representations per line into electron beam intensities!

So much for the visible or active portion of the screen. There are also "invisible" portions of the screen - for example the top and bottom borders of the screen. Also, once the electron beam reaches the bottom right-hand portion of the screen, it must "flyback" to the top left-hand corner. This is called the "vertical retrace". There is also another period called "blanking" which is a timing pause to allow the overworked electron beam to catch its breath before commencing another screen! Got all of that! In total, all of this beam activity corresponds to 312 scan lines - and it all occurs in 20 msec. or 50 times per second. For those whose maths can stand it, each scan line takes 0.064 msec. and each lo-res text line takes 0.77 msec. for the VDG to place upon the screen.

GOTO 5

This set-up can be illustrated by the following summary -

```
 50  lines ( 3.21 msec.) top border.
192  lines (12.31 msec.) active display.
 51  lines ( 3.27 msec.) bottom border.
  6  lines ( 0.38 msec.) vertical retrace.
 13  lines ( 0.83 msec.) blanking.
---  -----  ----- -----
312  lines (20.00 msec.)
```

The *FS line of the VDG goes low (high to low transition) at the END of the active display area - i.e. before the bottom border is reached. The time when the electron beam is scanning "invisible" portions of the screen is marked by this signal, which, in turn, triggers the Maskable Interrupt in the Z80. During this time, the CPU may have total access to VRAM without causing undesirable flicker on the screen. The amount of time available to the Z80 is 7.69 msec. out of the 20 msec. between each screen refresh. Note however, that the low to high transition of *FS coincides with the trailing edge of the vertical sync pulse - that is, it stays low for only 3.65 msec. or some 18% of the refresh cycle.

We now need to consider the timing of the CPU in doing a 2K Block Move operation. The Z80 in the VZ300 runs at 3.54 MHz (the VZ200 runs at 3.58 MHz). The following tabulation indicates the timing of the Block Move -

Opcode	T-states	M-cycles
DI	4	1
LD HL	10	3
LD DE	10	3
LD BC	10	3
LDIR	21x2047+16	5x2047+4
	If BC=0 then T=16 and M=4	
	If BC<>0 then T=21 and M=5	
EI	4	1
RET	10	3
	43051	10253

Time to execute is 43051/3.54E6 sec. = 12.16 msec. to Block Move a 2K screen. This is longer than the 7.69 msec. mentioned above. A 2K Block Move will cause hash to appear on the screen because a timing conflict in the write by the Z80 and the read by the VDG occurs. For those of you who have seen THROWUP operate, you will have seen this effect in the "plain mode" of operation.

So, what have we learnt thus far about graphics on the VZ? We have discovered how the Z80 and the 6847 VDG interact with VRAM to make the screen display. We have also seen why "hash" appears on the screen. We have also analysed the timing of screen transfers from a buffer and discovered that about 1K of data can be Block Moved during the screen refresh period. In some previous articles in User Group Newsletters, I have described the Maskable Interrupt System used in the VZ. Let's put all of this together to make a hash-free display system. Such a system is used in LIVENUP.

GOTO 6

INTERRUPT-DRIVEN SCREEN BUFFER.

I trust that the foregoing discussion makes it apparent that, when writing particularly graphics programs, it is better to have the Z80 updating a buffer area in memory rather than directly writing to VRAM. This is the only technique that will remove the hash from the VZ display. This programming technique has the added advantage that interrupts can be disabled and processing sped up considerably by bypassing some of the VZ's overheads such as keyboard scanning.

To transfer the buffer into VRAM employs a few other programming tricks. Clearly a 2K hi-res screen must be moved in two halves as there is simply insufficient time during the "invisible" portion of the display update to move it in a single 2K block.

The method that I have used enables the Maskable Interrupts on the Z80 and resets the Interrupt Vector to point to the screen update routines. To allow sufficient time for the two halves of the buffer to be relocated, a suitable delay or pause routine must be entered. One such routine occurs in the DOS ROM and can be conveniently called with the delay duration in msec. passed in the BC register. If DOS is not installed on the VZ then another delay routine occurs at 0060H in ROM. The value passed in BC is not in msec. however. The delay duration value can also be used to control the speed and smoothness at which graphics flow across the screen.

THE SOLUTION - AN ASSEMBLER LISTING.

So what does the Assembler listing of all of this look like? By referring to a listing of MOVE used by LIVENUP, some clarity may be shed on the subject for confused readers!

The listing falls naturally into four sections. The first is the mainline calling sequence and is not detailed herein as this will vary according to the application. The second portion is a pause and display subroutine called DPLY which points the Interrupt Vector at the move routines, enables interrupts and then enters a pause routine during which time the transfer of the buffer into VRAM occurs. The third and fourth portions move the top and bottom halves of the buffer respectively. They are called from the Interrupt Vector located at 787DH during the pause cycle and when interrupts are enabled. They are accurately timed and initiated by the *FS signal which calls the Interrupt Handling Routine. The move occurs during the "invisible" portion of the display update and eliminates hash.

```
            mainline of program  ;calling sequence.
            .........
            .........
            DI                   ;disable interrupts to speed up
processing.
            do calculations etc. ;update VRAM.
            CALL DELY            ;update screen display.
            EI                   ;enable interrupts to resume other
chores.
            .........                                  GOTO 7
            .........
            end
```

```
        VRAM EQU 7000H          ;start of screen memory.
        SSCN EQU 0B200H         ;start of buffer.   (or where-ever)
        SZSC EQU 0800H          ;size of screen/buffer.
        HSZC EQU 0400H          ;half of size of screen/buffer.
        DLAY EQU 4038H          ;address of delay routine in dos.
        IVEC EQU 787DH          ;location of 3-byte interrupt vector.
        JMP  EQU 0C3H           ;opcode for jump.
        TURN EQU 0C9H           ;opcode for return.
        DURD EQU 22H            ;delay duration in msec. to permit screen
update.


       DPLY LD A, JMP           ;put opcode for jump into A.
            LD BC, MTOP         ;point to start of move top-half of
buffer routine.
            LD (IVEC+1), BC     ;reset interrupt vector.
            LD (IVEC), A        ;ditto - now points to mtop.
            EI                  ;enable interrupts so that interrupt
vector is scanned.
            LD BC, DURD         ;delay duration in msec.
            CALL DLAY           ;go off into delay routine allowing
sufficient time for screen to be updated from buffer.
            DI                  ;disable interrupts to prepare for
resuming mainline program.
            RET                 ;go back to calling mainline to update
buffer.

       MTOP LD HL, SSCN         ;set source to start of buffer.
            LD DE, VRAM         ;set destination to start of screen.
            LD BC, HSZC         ;set size to half of buffer/screen size.
            LDIR                ;update top-half of screen.
            DI                  ;disable interrupts as interrupt vector
is to be reset.
            LD BC, MBOT         ;point to start of move bottom-half of
buffer routine.
            LD (IVEC+1), BC     ;reset interrupt vector.
            EI                  ;enable interrupts so that delay routine
can continue.
            RET                 ;go back to interrupt handler.

       MBOT LD HL, SSCN+HSZC    ;set source to half-way through buffer.
            LD DE, VRAM+HSZC    ;set destination similarly.
            LD BC, HSZC         ;set size.
            LDIR                ;update bottom-half of screen.
            DI                  ;disable interrupts as interrupt vector
is to be reset.
            LD A, TURN          ;put opcode for a return into A.
            LD (IVEC), A        ;reset interrupt vector so that screen
updating routines are not entered during remainder of delay routine.
            EI                  ;enable interrupts so that delay routine
can continue.
            RET                 ;go back to interrupt handler.


end.
```

SIX YEARS OF LE'VZ

What an interesting six years I have enjoyed whilst publishing *LE'VZ*. I have made many new friends in that time and learnt so very much about computing and publishing. It first started as a little helping hand to enable folk to meet and get a bit more from computing that the various staff at the Dick Smith Electronic stores could provide. I thank again helpful folk at some DSE stores who provided me with names of interested purchasers of the VZ and also displayed my name and 'phone number in their store.

LE' VZ 200 OOP.

AUGUST 1984. #3 J.C.E.D'ALTON.

HELLO FRIENDS
FIRSTLY I MUST THANK THOSE WHO HAVE REPLIED AND SENT ME DONATIONS' PROGRAMMES
HINTS AND TIPS. AS I HAVE FRENCH DESCENDANTS I DECIDED TO GIVE THE NEWSLETTER
A FRENCH FLAVOUR HENCE LE'VZ 200. THE OOP = OWNERS OPERATORS PROGRAMMERS
PLEASE DO NOT HESITATE TO PHONE MYSELF (AFTER SEMTOR ANY OF THE OTHER OOPS IF
YOU REQUIRE HELP AT ANY TIME. THERE ARE QUITE A FEW HINTS AND TIPS COMING
THROUGH OF WHICH A FEW ARE IN THIS ISSUE.
I WOULD REMIND YOU TO PLEASE SEND ME AN UNADDRESSED STAMPED ENVELOPE IF YOU
WANT TO RECEIVE THE GENERAL LIST AND LE'VZ200 OOP. THOSE WHO HAVE WRITTEN
OR TOLD ME VERBALLY THAT YOU DO NOT WANT TO BE ON THE GENERAL LIST (THATS OK
OTHERWISE YOU WILL AUTOMATICLY BE ON IT. THERE ARE 18 PEOPLE (OOPS) ON MY LIST
AT PRESENT COVERING A WIDE RANGE OF INTERESTS AND ABILITIES. I WILL TRY TO
PRINT SOMETHING FOR ALL FROM BEGINNER TO EXPERT.....

THOSE WHO HAVE ANY PROGRAMMES OF INTERE
BE PRINTED SO OTHER OOPS CAN USE THEM E
[illegible] THERE ARE NEW LI
WRITER IN THIS REGARD WHICH I AM IN
(SAVE) WRITING A PROGRAMME ? THEN W
SO IF YOU HAVE SOME GOOD SOFTWARE ? PL

....LE'VZ200/3

JUNE 1985. #7 $1.00. J.C.E.D'ALTON.

1. A COMMA (,) CAN BE TYPED INSTEAD
2. A QUESTION MARK (?) CAN BE TYPED
IT APPEARS AS PRINT.
3. AN APOSTROPHY (') CAN BE TYPED
4. ALWAYS USE THE CLEAR STATEMENT
5. REM- A GRAPHIC CHAR CANNOT BE US

6. TRY THIS.. TYPE IN..

```
10US= JONES$SMITH
20FORC=1TOLEN(N$)
30PRINT@200,RIGHT$(US,C)
40FORF=1T050 NEXT:NEXT END
```

Hello computing friends (OOPs).
The mighty little VZ 200 has grown up. If
use the DISC DRIVE SYSTEM to increase it's po
capabilities. Either you can do that or updat
VZ 300, with it's 'Proper' keyboard and more
I have added VZ 300 to the name of the ne
may have noticed, to cover it as the VZ 300 is not that much
different to the VZ 200. As for the disc drive, well it
gives a new dimension to [illegible]. Most of the
software listed in that sec
on disc. It is a pity that
comes with the LASER unit i
to the user to read other p
serious Programming, in Par

IAN WEEBEP HAS TWO PROGRAMMES...
HAS A FEW OPTIONS
1. CREATE NEW PROGRAMME
2. TRANSFER CONTROL
3. LIST MEMORY IN HEX
4. RENUMBER A PROGRAMME
5. FIND ADDRESS OF A LINE
6. COPY A PROGRAMME TO ANOTHER ROM
$15.00

1. WRITE ASSEMBLY CODE
2. SAVE (COPY PRO
3. CONVERT HEX
4. LIST MEMORY IN HEX
$10.00

I would like those who
Drive System to Please
Remember. If you have a
others waiting to buy.
I have spent only a s
mention of it. The diff
stated before in regards
keys as the VZ 200, is
selves. The ROMs have
communication addresses whi

Top of Mem Pointer-
beep- 30779.

The basic VZ 300 usable
the 2K Video RAM =18K.
system.

The VZ 300 RAM exp
starting address of the
of a 24K VZ 200 is CFFFH.
A VZ 300 with the 16K
63176.

I am presently writi
from tape as saved on VZ
plenty of search facilitie

Now to add more to U
is not widely known but
others in the business,
through'. The magnetic
small
reading
lenses
tapes,

Hi OOPs,
By the time you read this I will be doing my Jogging
and exersising seriously to be in shape for my skiing on
Mt.Hotham in Victoria. Ahh-- to get away from the Queens-
land heat for a few days.
If there is anyone else likely to be skiing
down there Perhaps we could meet up. I will be there at
the end of July, so if you are interested in talking
a LITTLE about computers, let me know.
I have had a few good compliments about LE'VZ,
which is very gratifying. I thank those OOPs very much.
Bob Kitch, Larry Taylor and I had a little Pow-wow
during Easter about the VZ and LE'VZ and have come up with
some new ideas which should make LE'VZ even better with
their help. I have received more contributions but would
like more. Don't be afraid to let other folk know what you
are doing with the VZ.
There are some who have added a full size keyboard, voice synthesiser,
extra RAM memory and so on. And of course there are others who write good
software. But the majority seem to be content to just Play Games (someone
elses), what a Pity. Programming in BASIC is not that hard. Like learning
any language, Practice (in this case, at the keyboard) and determination is
what is required. Give it a go!!

My recommendation is to fasten down by screwing or clamping the entire
system, computer- VZ DTR- Power Packs and disc drive (if any) to a base
board. This can be a Piece of five Ply with rubber feet underneath. Or an
old upturned cupboard drawer, where the Power Packs can be clamped up
underneath.
The object is to ensure very little movement of the Pieces. The way some
folk have the RAM unit flopping around amazes me. No wonder their system
crashes from time to time. Once this has been done the real Pleasure of
computing comes to light.

Some folk do have trouble with heat apparently causing crashes, but this
seems to apply to the early VZ 200s. I have a VZ 200 which among other
things, Plays the door chime, and it is running 24 hours per day and crashes
very rarely (once a fortnight/week). Admittedly it does not have the RAM
Pack Plugged in causing more current drain, but I think it does demonstrate
that the VZ can be used for long Periods.

Now that you have set up the VZ correctly, would you like to really put
it to some very useful purposes. The things that you may know that the
Commodore, Atari, BBC, Microbee, Apple and others can do. Such as:--

Would you like to "talk" to other VZ owners and other computers???
Would you like to use the VZ in an alarm system???
Would you like to run serious/useful software like data bases or financial Packages???
Would you like to talk to other "HAMs" via Radio Teletype???
Would you like to listen to international RTTY diplomatic and news services???
Would you like to use computer bulletin boards???

LE'VZ #12 P1

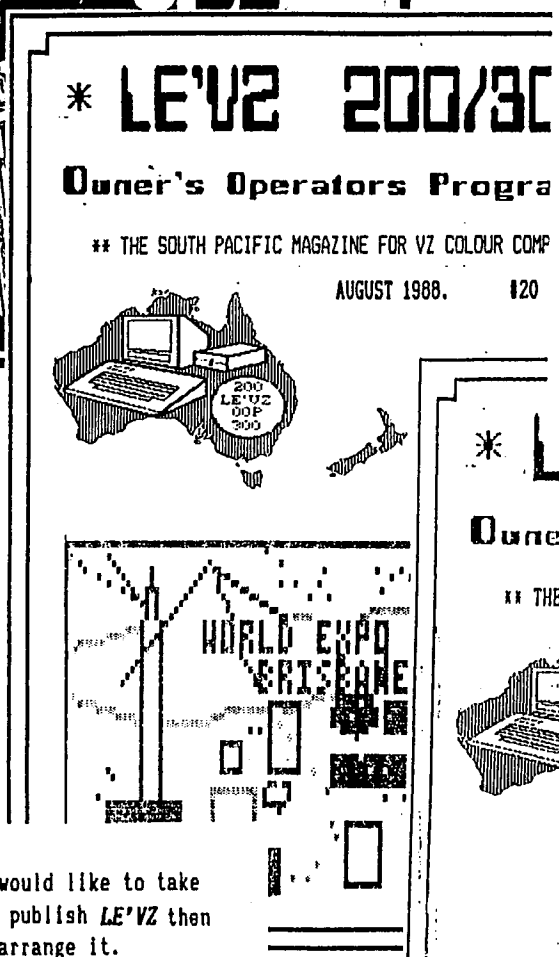
GOTO 9

LE'VZ 200/300 OOP

JUNE 1986. #12 $1.00. J.C.E.D'ALTON. 39 Agnes St. TOOWONG. QLD. 4066. AUSTRALIA.

The first issue was just one A4 sheet and I posted it and later issues for the price of a postage stamp. I have reproduced the front page of #2 not #1 as I have misplaced it.

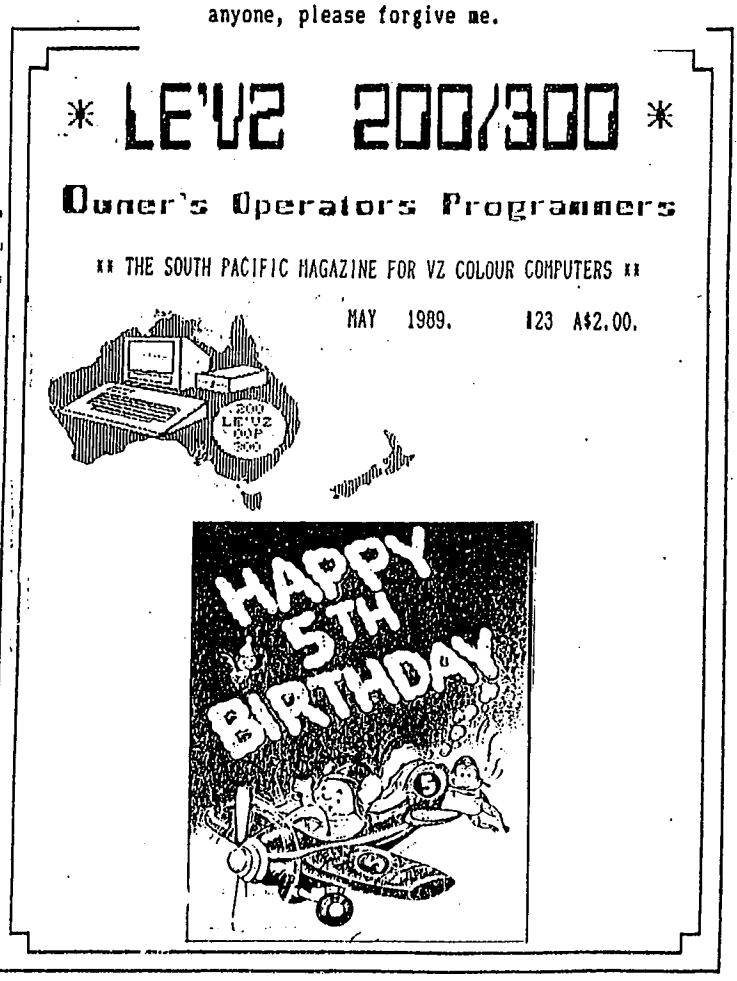
By the 2nd year, #7, I renamed it by including "300" as the new updated VZ200 was called. And the VZ could now be operated with a Disc Drive System. The little VZ had grown up.



By the 3rd year, #16, *LE'VZ* had developed a front cover in colour. I also had purchased a new printer, this CITIZEN 120D and was using and selling *QUICKWRITE*, the new Wordprocessor.

The 4th year, #20, was printed during a very interesting time, that being the World Expo in Brisbane. By this time I was publishing excellent contributions by Larry Taylor, Bob Kitch, Joe Leon and others; really top articles.

May 1989 was the 5th year, #23. I commenced a new little segment, ***What's In The Other Magazines.*** I hope this helped folk to become readers of those publications also. I must also thank other people who were involved in someway with *LE'VZ*. Eddie Tomes with his Software Lists. Bob Kitch with his Information Lists. Gavin Williamson of Laserlink. Scott LeBrun, Mark Harwood and many others. If I have forgotten anyone, please forgive me.



If anyone out there would like to take over and continue to publish *LE'VZ* then I would be happy to arrange it.

Finally, I bid farewell to OOPs and others, but hope to keep in contact with various folk from time to time. Who knows, maybe another computer magazine, but most unlikly, perhaps a travel magazine would be fun.

Adios amigos, GOD bless.

John D'Alton.

LETTER TO THE EDITOR.

Dear Ed,

I was quite saddened when I read the Editorial in LE'VZ #26. The unthinkable has happened! John D'Alton is going to produce only one more (final) LE'VZ for OOP's!

I guess this reflects the passing of time (years) for the large number of people who bought from DSE, a great little computer - the VZ 200/300. The reasons as to why people purchased a VZ, are extremely variable - but the principle one seems to have been "to learn about computing". A number of people have thrown their support behind the machine through various User Groups, some of which have produced very informative and valuable Newsletters. Usually the production of the newsletters has fallen upon one individual. In the case of LE'VZ, John will have produced 27 newsletters over the period since June 1984. A truly great effort and contribution to the education of OOP's.

Additionally, John has contributed much more to OOP's than the newsletter. He has encouraged, circulated and sold a range of software for the VZ - some of which were written by himself. For those OOP's living in SE Queensland or northern NSW, I am sure you will remember the Christmas Meetings organised by John, as an absorbing day to meet other Users, ask questions and see hardware and software demonstrated. John of course was always willing to respond to VZ queries over the phone or by correspondence. He also coordinated a number of Users to handle OOP's questions. As this resume indicates, John has made a huge contribution to all OOPs.

In my case, I first met John after winning a VZ in an Electronics Australia competition. His large collection of magazine articles on the VZ prompted me to compile my list of magazine articles that has proved extremely interesting to OOP's. He has also encouraged me to write many contributions on the VZ.

As I said, this is the passing of an Era. I trust that John will continue his interest in the VZ however.

On behalf of all OOPs who have come into contact with you over the VZ

THANKS JOHN FOR YOUR CONTRIBUTION TO OOP'S & COMPUTING.

Bob Kitch

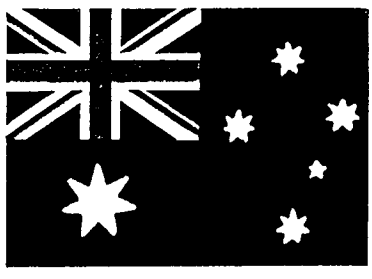
TODAY'S THOUGHT

A good name is rather to be chosen than great riches, and loving favour rather than silver and gold.

PROVERBS 22:1

The rich and poor meet together; thy *LORD* is the maker of them all.

PROVERBS 22:2



H I N T S

Here are some useful little hints you may be able to use.

The first two do the same thing. That is, you can have a string printed on the VDU in inverse.
The POKE in line 70 instructs the VZ to print the NAME and AGE in inverse.
The POKE in line 100 switches the INVERSE instruction off so that the TIME is printed as normal.

```
3 REM INVERSE INPUTAND PRINT
5 CLS
10 PRINT"START"
50 INPUT"ENTER NAME ";Q$
70 POKE30776,10:INPUT"AGE ";A$
80 PRINT"NAME ";Q$
90 PRINT"AGE ";A$
100 POKE30776,1
200 INPUT"TIME ";T$
220 PRINT"TIME ";T$
300 END
```

Line 180 in the second programme causes the INVERSE printing on the VDU of "TEST" and "12345".

Line 220 switches the function off.

```
50 REM INVERSE INPUT/PRINT
100 CLS
120 A$="TEST"
130 B=12345
150 PRINTA$:PRINTB
160 PRINT"--------------------"
180 POKE30776,PEEK(30776)OR2
200 PRINTA$:PRINTB
220 POKE30776,PEEK(30776)AND253
260 PRINT"--------------------"
280 PRINTA$:PRINTB
```

The three line little routine can be put to good use in INPUT lines. In this case if a number no smaller than 1 or no larger than 7 is typed in, then all is OK.
If a number outside these parameters is typed in, then the cursor will flash over the number typed, or if a number more than one digit is typed, then the cursor will flash over the first number typed.
Line 110 achieves this.

(J.D.)

```
50 REM ERROR INPUT IF <1 OR >7
100 INPUT"TYPE IN A NUMBER ";K
110 IFK<1ORK>7THENPRINTCHR$(27);CHR$(27):GOTO100
```

D.S.E. DATA BASE MODIFICATIONS

This concerns the disc based DATA BASE as sold by Dick Smith Electronics and was written by my friend Mr Phil Maude.

I have made a few modifications to the unit for my own use which includes:-

Search for four characters on fields two onwards, anywhere along that field, not just the first four characters.
To be able to change the names of the fields after you have saved the "SYSOP" on disc.
To be able to edit a record but not have to type the whole record over again. The fields are printed onto the VDU with the cursor flashing on top of the first character. If that field is correct then you just have to type <RETURN>. If you want to edit that field then just retype or move the cursor along in the usual manner.

As yet I have to come to an agreement with Phil before I can offer these modifications to folk, but I would like to hear from those who are interested.

(J.D.)

INFORMATION CONTACTS

Here are some other folk who you can contact. Always include a SASE. If you require a written reply. If you don't live in the same country, send a couple of International Reply Coupons. These are available a Post Offices througout the world. Please use good judgement if you telephone, perhaps not on Sundays. Check with the person concerned.

Graphics, M/L, printer info, educational.
Mr.Larry Taylor, 4 Columbia Court, SPRINGWOOD. QLD. 4127. 'phone (07)208 1258.

M/L, hardware, BASIC programming and his special list of all types of info.
Mr.Bob Kitch, 7 Eurella St., KENMORE. QLD. 4069. 'phone (07)378 3745.

Software list.
Mr.Eddie Tomes, 3 Kilkenny St., CAPALABA. QLD. 4157. 'phone (07)390 2797.

General info.
Mr.Stan Noble, 307 Mt.Crosby Rd., CHUWAR. QLD. 'phone (07)281 7854.

Communications, Modems, RTTY.
Mr.Irving Spackman, 78 Waima Crescent, TITIRANGI. AUCKLAND.
New Zealand.

RTTY Units.
Mr.Col Paton. VK4BCP. 225 Pallas St., MARYBOROUGH. QLD. 4650
'phone (071)221 090.

Letter to the editor

Vee Zed Down Under Club
12 Thomas Str.
Mitcham.
Vic. 3132.

Dear Sir

It is with regret that we read of John's intention to cease publication of LE'VZ OOPS.

His is the longest running Newsletter we have had, and was one of the first to start.

We all here say "Thankyou John for a job well done".

Wishing you Godspeed in your recovery after your forthcoming operation,

On behalf of the
V.Z Down Under Club

Harry Huggins (editor).

* * A CONTENTS LIST * *

LE'VZ FROM #22 FEBRUARY '87 to #26 FEBRUARY '90.

I still have some back issues in stock. Back issues cost A$3.00 each plus postage. If there is a particular article or item in the earlier issues that you would like, please see if you can obtain/borrow that LE'VZ to enable you to get the item that you are after. Failing that, I may be able to copy that item ONLY for you at 20 cents per A4 page.

SOFTWARE FOR SALE FROM VSOFTWAREZ

39 Agnes St., TOOWONG. QLD. 4066. AUSTRALIA. (07) 371 3707.

MAY 1993.

We discontinued most of our software as from the 1st. of November 1988.

We will only stock the most popular units.
The list under "EXISTING SOFTWARE" is items we will continue to sell. Those marked "+LL" include a LLISTing so that you can modify it to suit your own needs.
The list under "DISCONTINUED SOFTWARE" is what we still have in stock. Other items not listed at all will not be supplied. It is just not viable for us to stock items that are not selling. Prices of most software is now reduced to clear stocks. We trust you understand.

All prices are correct at time of printing, but may change without notice. All articles available while stocks last. All prices in A$.
All tape software includes postage up to four tapes.
When ordering software, always state := which computer VZ200 or VZ300, if you have an expansion RAM unit , and if you have a disc drive system connected or denote as below.

VZ1 = unexpanded VZ200. VZ2 = unexpanded VZ300.
VZ3 = expanded VZ200. VZ4 = expanded VZ300.
VZ5 = VZ200/VZ300 with 64K RAM PACK.

IE. TU6 = Tape only unit of U6. DB46 = Disc only unit of B46.
D/TU19 = Tape or Disc unit available of U19.
The price stated is for a Tape unit. If a Disc unit is required, add $5.00. to the Tape price. The price of a Disc unit is as stated.

We accept BANKCARD and VISACARD, as well as bank, building society, credit union, private cheques, or Aust Post money orders.
Make cheques payable to J.D'ALTON or VSOFTWAREZ.

* * SUFURB SOFTWARE * *

DB60. QUICKWRITE TEXT EDITOR V4 II $40.00. 64K RAM Pack is a must.
This unit is based on the QUICKWRITE WORDPROCESSOR. All the features of QW V3 and V4 are included, plus many more. The unit is probably the largest M/L software written for the VZ. You must have a 64K RAM expansion installed as the three top 16K banks are switched by the software as required. The file space for your document is about 40K which is ample for most requirements.
The unit is listed in the Australian Personal Computer magazines' Software Guide 1988. Files saved by QUICKWRITE V3 and V4 can be loaded as normal.
We will not allow any discount for previous purchasers of QW V3 or V4.
Tape files made with the old DSE E&F WP can be also loaded. Another very useful feature is the ability to also load M/L source code files made with the DSE Editor/Assembler. The SET UP MODE is where one sets up the different printer commands IE. line length, column length, margin, page, gap, tab, indent, double spacing, number of copies etc. These are all saved on the disc document file which means the user saves time when loading the file at another time.
OH yes, disc files can be MERGED with another file that is already in memory!!
SCREEN ECHO is another feature which gives the user ***WYSIWYG (What You See Is What You Get)*** which is great for column text with less than 31 characters, but is still helpful with longer lines, "wrap around" notwithstanding.
A special CONVERSION programme is included which allows the loading of ***BASIC*** programmes which do not have any ***EXTENDED BASIC*** commands written in them. See page three and four. An instruction booklet is of course included.

QUICKWRITE AND TEXT EDITOR CAN ONLY BE PURCHASED FROM US.

+ EXISTING SOFTWARE +

D/TB1	CASH BOOK LEDGER	$ 20.00.	VZ3-VZ4. +LL.
DB4	LE'VZ D'BASE	$ 50.00.	VZ3-VZ4. +LL.
DB16	CHEQUE LEDGER D.	$ 40.00.	VZ3-VZ4. +LL.
D/TU19	COPY/PROTECT.	$ 20.00.	VZ1-VZ4.
D/TU48	FILESEARCH.	$ 5.00.	VZ1-VZ4.
D/TG50	ESCAPE RIVER.	$ 8.00.	VZ3-VZ4.
D/TU49	VZ-EPSON PRINT/PATCH.	$ 10.00.	VZ1-VZ4.
D/U56	DISKOPS4 +2.	$ 10.00.	VZ3-VZ4.
DB57	QUICKWRITE V4.	$ 40.00.	VZ3-VZ4.
D/TG58	FACTORY.	$ 15.00.	VZ4.
DB60	QW-TEXT EDITOR.	$ 40.00.	VZ5.

DISCONTINUED SOFTWARE

All 50% off While stocks last.

D/TE5	COORDINATES	$ 10.00.	VZ2-VZ4.
D/TE7	MICROSCOPE	$ 8.00.	VZ3-VZ4.
DU47A	DISKOPS2	$ 10.00.	VZ4.
D/TG52	SOLO BATTLESHIPS.	$ 15.00.	VZ2-VZ4.

IN BRIEF

The Methodist Ladies College year five students are now using Toshiba T1000/SE computers in all their classes.
The 82 students of the Melbourne college have been using the computers from the begining of this year.

***

The virus called "Jerusalem B" has been discovered in Hong Kong to perhaps cause havoc on Friday the 13th of April. Jeruselem B is also known as Black Friday, because it is programmed to lie dormant until the host computer's clock registers Friday the 13th.

***

Students at the University of Tennessee hacked into the campus computer and rearranged their classes for over a year. 200 students were involved.

***

HARDWARE AND FIRMWARE FOR SALE.

VSOFTWAREZ, 39 Agnes St., TOOWONG. QLD. 4066.
AUSTRALIA. 'Phone (07) 371 3707.

As with our software, we are also going to discontinue most hardware sales. We will be continuing to sell books.

Unlike our software prices, these do NOT include postage. Always include extra money with your order and we will send any surplus back in the parcel or put it towards any credit you may wish, such as to LE'VZ, if you are an OOP. If you wish to receive LE'VZ, read page 11.
Prices are in Australian dollars (AUD) as at the 1st. of May 1989. Items available while stocks last.
There is NO WARRANTY on used items, but all are tested OK.

One LASER Light Pen with tape and interface used $ 40.00.

BOOKS

VPROGRAMMEZ-VZ-VZ new $ 10.50 each.
Surface postage in Australia and NZ is included.
This is my own special book for beginners and advanced VZers.

VZ200-VZ300 Assembly Language Programming Manual for Beginners by Steve Olney. new $ 25.00 each.

Beginners Guide to the VZ200/VZ300 Editor Assembler by Peter Schaper. new $ 20.00 each.
This book explains in simple language how to use the Dick Smith Editor Assembler unit. The little instruction booklet that comes with the tape is not very easy to understand to many folk. Peter uses some short M/L routines to explain the use of the Ed/Ass but he does not teach you M/L as such. As I mentioned previously in LE'VZ, the book will be printed and put together when ordered. I do this as soon as possible, but there will be a delay. There are fifty eight pages of A4 size so it is good value for money.

OTHER VZ USER GROUPS & CLUBS.

AUSTRALIA.

VZ DOWN UNDER.
MR H.M Huggins, 12 Thomas St., MITCHAM. VIC. 3132.

HUNTER VALLEY VZ USERS GROUP.
C/O P.O. Box 161, JESMOND. NSW. 2299.

WAVZ ENTHUSIASTS GROUP.
MR Graeme Bywater, P.O. Box 388, MORLEY. WA. 6062.

BRISBANE VZ USERS WORKSHOP.
C/O Mr. Bob Jones, 63 Tingalpa St.,
WYNNUM WEST. QLD. 4178.

* * WHAT'S IN THE OTHER MAGAZINES * *

I think this section will help VZ users and OOPs know what other information is available from other sources. This means in club magazines, newletter and journals as well as commercial publications.

Hunter Valley VZ User Group - Nov/December 1989.

1. Boolean Logic Functions and Hi-Res.
2. Liven-Up animation - continued.
3. Suite II continued.
4. Keyboarding Part 1.
5. Speech Synthesiser continued.
6. Check Disk.
7. IPL Sequence Decoding continued.

VZ DOWN UNDER Jan/February 1990.

1. Liven-Up continued.
2. Games Column.
3. Roulette game - BASIC.
4. BASIC Made Easy.
5. First Steps IN Machine Code.

JOHN D'ALTON VSOFTWAREZ.
39 AGNES ST. TOOWONG. QUEENSLAND.
AUSTRALIA.
'PHONE (07) 371 3707
MAY 1990.

LE'VZ 200/300 OOP IS PUBLISHED APPROXIMATELY EVERY THREE MONTHS.