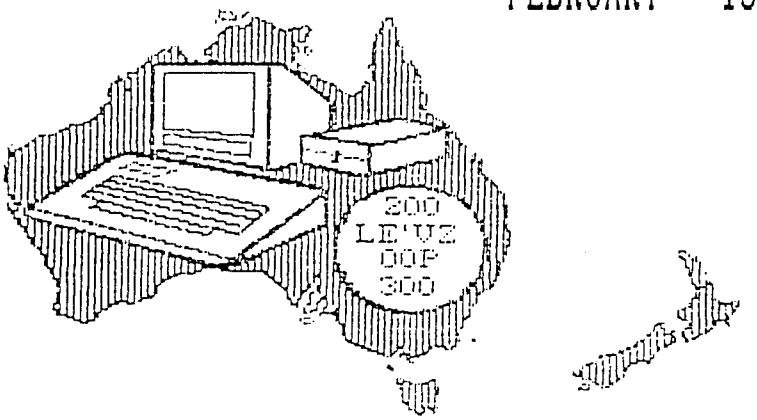
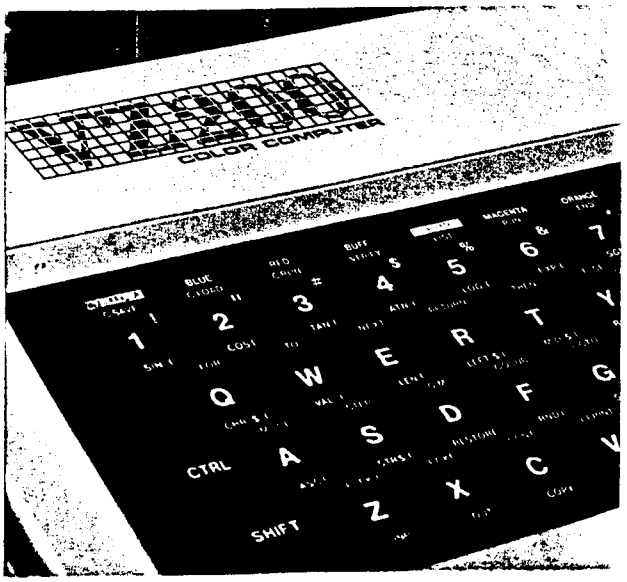
* LE'V2 200/300 *

Owner's Operators Programmers

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

FEBRUARY 1990. #26 A$2.00.





EDITORIAL

Hullo VZers, and others.

I am writing this three days before Christmas Day. What a wonderful and important day of the year it is for Christians and non-Christians throughout the world. A special time to celebrate the birth of *JESUS* and see friends and relatives again. And what a fantastic Christmas present for folk in East Germany and the other Soviet Bloc Countries. Who would have thought of this at this time last year. We must not forget the other wonderful happenings in other parts of the world either; South America and Africa.

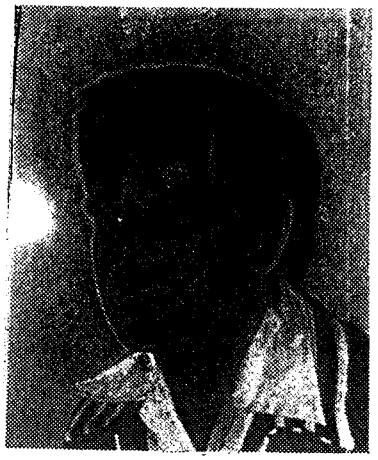
VZ happenings on the other hand are rather sparse by contrast. Feedback from OOPs and readers in the last couple of years has been almost non-existant. Rather dissapointing for me.

Anyway time has finaly arrived whereby I am going to publish only one more ***LE'VZ 200/300 OOP.***

That's right. This issue #26 and the last issue #27 for May 1990. That last issue will complete six years of ***LE'VZ*** publication. I have done all the work myself other than contributions sent by a few very helpful folk. I give special thanks to them.

Any monies that OOPs have in credit after this ***LE'VZ*** OVER FIVE DOLLARS ($5.00) will be sent to folk with the last issue. I have to count the cost of postage and an Aust. Post money order will cost almost two dollars. I will not be accepting any new monies for the purchase of ***LE'VZ*** . Another factor is that I am booked into hospital next September to have my right hip joint replaced and will be immobilised for some weeks. Then I can go jogging and skiing again, ripper!

Anyway I suggest that folk arrange to receive newsletter/s from the ***Hunter Valley VZ Users Group*** or ***VZ Downunder.*** The addresses are on page 14.



Feliz Ano Nuevo - Happy Newyear readers.

This section I am writing in 1990. I hope it has commenced for YOU in a good manner.

The Annual big Computer Expo 1989 held at the Brisbane RNA grounds was the usual affair. I have commented on previous shows before. If one has a couple of thousand dollars to spend they are very good. But for the average hobbiest there is not much of interest.

There were a couple of China based stands demonstrating software that handles the Chinese script; very clever. Not much on musical items except a little on the musical hardware called MIDI.

One just can't imagine what will be around at the start of the next decade - century; 2000 AD.

Well that's all for this time.

GOD BLESS JOHN.

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.

LIVEN-UP ANIMATION & GRAPHICS
Part 2 by Bob Kitch.

7 Eurella St.,
KENMORE QLD. 4069.

This is the second and final part of Bob's contribution.

.....

DISCUSSION OF MOVEUP.

The source code for MOVEUP is by far the most interesting and illuminating portion of the project. It consists of a number of general purpose "primitive" subroutines.

There are nine "fancy" screen move routines. The action of these is described by their titles - splat, open-up, roll up/down, push up/down, four bar roll down, and l-r/r-l sweeps. With the exception of the sweeps, all other screen moves involve verical movements of the pictures. This movement is the easiest to program as consecutive blocks or lines of the screen are moved using the Block Move command. Most of the additional programming keeps track of the appropriate source, destination and size pointers. Usually either a 2K block (one full screen), or a 32 byte (one screen line), portion of memory is required to be moved.

The sweeps are much more difficult to program. The logic used to achieve the horizontal replacement, two bits at a time, is the subject of a further article on logical operators. Experienced programmers may follow the method through the comments inserted in the source code. Some very elegant mathematics is used.

All of the move routines write to a screen buffer rather than directly into the video display RAM area. Also during this write period, all interrupts are disabled so that processing speed is optimized. The screen buffer is used so that the video display may be interrupt driven such that flicker or hash is avoided.

The timing of the interrupt driven display, that eliminates the screen hash, is achieved by two routines that are called from the Interrupt Vector. The screen buffer is moved in two halves as there is insufficient time in the display flyback period to move the entire 2K screen. A display and pause routine is entered to permit the screen buffer to be moved into the video display RAM. The pause loop is located in the DOS ROM, and by choosing a suitable duration, a smooth movement can be obtained.

Two other general purpose subroutines are given that save and restore the register set to the stack upon entry and exit to any machine code. Furthermore, the register values are unchanged. Very useful.

Finally, the use of a Jump Table to enter the nine routines considerably simplifies the set-up of the USR pointers. This technique is to be recommended.

FURTHER ENHANCEMENTS.

That about outlines the essentials of the programs. Note that instructions are inserted in the code to allow the procedures to be followed. Also the code has been written with specific constants inserted rather than generalized variables. For those who are interested, it is possible to store a couple of further screens in the top of bank 0 by setting the top-of-memory even lower but the elegance of the triple-nested loops is lost! (refer Load Map).

A further refinement of the loading and saving technique is shown in the code for THROWUP. On reflection and when the 24 screens are loaded into the buffers in hi-mem, there are in reality three 16K blocks of data extending from C000H to FFFFH. It would be convenient and a little faster, to save and load these 16K blocks to- and from- disk respectively. Dialog encountered during program execution indicates how this refinement can be achieved.

Observant programmers will notice that subroutine SC0 "(Splat") in MOVEUP is not used in the present version. This can be used in lieu of the 14 byte M/L routine and provide hash-free animation.

One further enhancement is to use data compression techniques to store the screens into the buffer areas. Most graphic screens have many sections of "shared" bytes, for example, in "background" areas. This would be a very fruitful area for experimentation as many more than 24 screens could be stored in the 64K pack.

I trust that this article provides some insight into an interesting area of programming. Should anyone wish to communicate with me on their efforts, then I would be pleased to do so. A number of these enhancements are operational on my "fully-fledged" version.

```
1  ;
2  ;SOURCE:START
3  ;ORIGIN:7200H (VRAM).
4  ;OBJECT:STARTUP
5  ;
6  ;THIS ROUTINE:-
7  ;1. LOWERS TOM TO "TOP"
8  ;2. RESETS POINTERS BY A NEW
9  ;3. RELOCATES DOS VECTOR TO
10 ;   BELOW "TOP".
11 ;4. RUNS "FNAM" (T:FILE).
12 ;
13 ;
14 ;
15 TOP EQU 0BFFFH
16 ;VALUE FOR TOM.
17 CLS EQU 01C9H
18 ;CLEAR SCREEN.
19 NEW EQU 1B4DH
20 ;NEW ENTRY POINT.
21 TOM EQU 78B1H
```

GOTO 4

```
22 ;TOM POINTER.
23 JUMP EQU 0C3H
24 ;OPCODE FOR JUMP.
25 TURN EQU 0C9H
26 ;OPCODE FOR RETURN.
27 RDOS EQU 4004H
28 ;ENTRY POINT TO RESET DOS
29 ;VECTOR.
30 PWON EQU 4008H
31 ;ENTRY POINT FOR DISK POWER
32 ;ON.
33 READ EQU 45DBH
34 ;ENTRY POINT TO READ FILNAM.
35 VEC2 EQU 79ACH
36 ;VECTOR CALLED FROM 1A1CH.
37 ;
38 ;
39 ;
40  CALL CLS
41  LD HL,TOP
42  LD (TOM),HL
43  LD HL,ENT
44  LD (VEC2+1),HL
45  LD A,JUMP
46  LD (VEC2),A
47  JP RDOS
48 ;
49 ;
50 ENT POP HL
51  LD A,TURN
52  LD (VEC2),A
53  EI
54  CALL NEW
55  CALL PWON
56  DI
57  LD HL,FNAM
58  JP READ
59 FNAM EQU $
60 *"LOADUP":*
61 END EQU $
```

```
1  ;
2  ;SOURCE:MOVE
3  ;ORIGIN:0BC00H
4  ;OBJECT:MOVEUP
5  ;
6  ;SCREEN REPLACEMENT SUBS.
7  ;  BY BOB KITCH.
8  ;    25/APR./89
9  ;
10 ;
11 ;
12 ;
13 VRAM EQU 7000H
14 ;START OF VIDEO SCREEN.
15 SSCN EQU 0B200H
16 ;START OF SCREEN BUFFER.
17 SZSC EQU 0800H
18 ;SIZE OF SCREEN.
19 HSZC EQU 0400H
20 ;HALF SIZE SCREEN.
21 ESCN EQU SSCN+SZSC
22 ;END OF SCREEN BUFFER + 1.
23 LLEN EQU 20H
24 ;LINE LENGTH IN BYTES.
25 NLIN EQU 40H
26 ;NUMBER OF LINES.
27 BIG EQU 0FFFFH+1
28 ;EQ. TO 65536D.
29 ZERO EQU 00H
30 ;ZERO FOR OFFSETS.
31 SBF1 EQU 0C000H
32 ;START OF PICTURE BUFFERS.
33 SBF2 EQU SBF1+SZSC
34 SBF3 EQU SBF2+SZSC
35 SBF4 EQU SBF3+SZSC
36 SBF5 EQU SBF4+SZSC
37 SBF6 EQU SBF5+SZSC
38 SBF7 EQU SBF6+SZSC
39 SBF8 EQU SBF7+SZSC
40 DLAY EQU 4038H
41 ;DELAY ROUTINE IN DOS.
42 DURD EQU 22H
43 ;DELAY DURATION IN MSEC.
44 TURN EQU 0C9H
45 ;OPCODE FOR RETURN.
46 JMP EQU 0C3H
47 ;OPCODE FOR JUMP.
48 IVEC EQU 787DH
49 ;3 BYTE INTERRUPT VECTOR.
50 ;
51 ;
52 ;JUMP TABLE FOR 9 PIC MOVES.
53 STRT JP SC0
54  JP SC1
55  JP SC2
56  JP SC3
57  JP SC4
58  JP SC5
59  JP SC6
60  JP SC7
61  JP SC8
62 ;
63 ;
64 ;SCREEN 0 - SPLAT.
65 SC0 CALL SAVR
66 ;SAVE REGISTERS.
67  LD HL,SBF1
68 ;SOURCE - START OF BUFFER.
69  LD DE,SSCN
70 ;DEST - START OF SCREEN.
71  LD BC,SZSC
72 ;SIZE - SCREEN FULL.
73  LDIR
74 ;MOVE IT.
75  CALL DPLY
76 ;DISPLAY AND PAUSE.
77  CALL RESR
78 ;RESTORE REGISTERS.
79  RET
80 ;FINISH
81 ;
82 ;
83 ;SAVE REGISTERS AND DISABLE
84 ;INTERRUPTS FOR CALCULATIONS
85 ;AND MOVES.
86 SAVR DI
87  EX (SP),HL
88 ;PUT RET ADDR INTO HL & SAVE
89 ;HL - DOESN'T CHANGE SP.
90  PUSH DE
91  PUSH BC
92  PUSH AF
93  PUSH HL
94 ;PUT RET ADDR. ON TOP.
95 ;
96 ;
97 ;RESET HL TO ENTRY VALUE.
98  LD HL,11
99 ;2 TIMES NO. OF REGS. + 3
100 ADD HL,SP
101;POINT TO H-VALUE IN STACK.
102 PUSH AF
103;SAVE AF REG.
104 LD A,(HL)
105;AND PUT IN A REG.
106 DEC HL
107;NOW POINT TO L-VALUE.
108 LD L,(HL)
109;AND PUT IN L REG.
110 LD H,A
111;MOVE H-VALUE.
112 POP AF
113;RESTORE AF REG.
114 RET
115;
116;
117;RESTORE REGISTERS AND
118;ENABLE INTERRUPTS FOR
119;RETURN TO BASIC.
120RESR POP HL
121;GET RET ADDR.
122 POP AF
123 POP BC
124 POP DE
125 EX (SP),HL
126;RESTORE HL & PUT RET ADDR.
127;ON STACK.
128 EI
129 RET
130;
```

GOTO 5

```
131;
132;SCREEN 1 - OPEN-UP.
133;USE STACK TO STORE UPPER
134;HALF POINTERS.
135;USE IX AND IY REGS. TO
136;STORE LOWER HALF POINTERS.
137SC1 CALL SAVR
138;SAVE REGISTERS.
139 PUSH IX
140 PUSH IY
141 LD HL,SBF1+HSZC
142;PT. TO START OF LOWER-HALF.
143 LD DE,SSCN+HSZC
144;PT. TO CORRESPONDING DEST.
145 PUSH HL
146;PUT SOURCE HL INTO IX.
147 POP IX
148 PUSH DE
149;PUT DEST. DE INTO IY.
150 POP IY
151 DEC HL
152;PT. TO END OF UPPER-HALF.
153 DEC DE
154;PT. TO CORRESPONDING DEST.
155 LD B,20H
156;HALF NO. OF SCREEN LINES.
157NLN1 PUSH BC
158;SAVE LINE COUNTER.
159 LD BC,LLEN
160;SIZE - 1 LINE.
161 LDDR
162;MOVE IT - UPPER HALF LINE.
163 PUSH HL
164;SAVE PTR. ON STACK.
165 PUSH DE
166;SAVE PTR. ON STACK.
167 PUSH IX
168;RESTORE LOWER HALF SOURCE.
169 POP HL
170 PUSH IY
171;RESTORE LOWER HALF DEST.
172 POP DE
173 LD BC,LLEN
174;SIZE - 1 LINE.
175 LDIR
176;MOVE IT - LOWER HALF LINE.
177 PUSH HL
178 POP IX
179;PUT SOURCE HL INTO IX.
180 PUSH DE
181 POP IY
182;PUT DEST. DE INTO IY.
183 CALL DPLY
184;DISPLAY AND PAUSE.
185 POP DE
186;RESTORE UPPER HALF PTRS.
187 POP HL
188 POP BC
189;RESTORE LINE COUNTER.
190 DJNZ NLN1
191;WHOLE SCREEN MOVED?
192 POP IY
193 POP IX
194 CALL RESR
195;RESTORE REGS.
196 RET
197;FINISH.
198;
199;
200;SCREEN 2 - ROLL DOWN.
201;NOTE THAT SCREENS 2 AND 3
202;ARE INTERCHANGED IN
203;DISPLAY SEQUENCE.
204SC2 CALL SAVR
205;SAVE REGS.
206 LD HL,SBF3
207;SOURCE.
208 LD DE,SSCN
209;DESTINATION.
210 LD B,NLIN
211;LINE COUNTER.
212NLN2 PUSH BC
213;SAVE LINE COUNTER.
214 LD BC,LLEN
215;SIZE - ONE FULL LINE.
216 LDIR
217;MOVE IT.
218 CALL DPLY
219;DISPLAY AND PAUSE.
220 POP BC
221;RESTORE LINE COUNTER.
222 DJNZ NLN2
223;SCREEN FULL?
224 CALL RESR
225;RESTORE REGS.
226 RET
227;FINISH
228;
229;
230;SCREEN 3 - PUSH DOWN.
231SC3 CALL SAVR
232;SAVE REGS.
233 LD HL,SBF4-1
234;SOURCE - END OF SBF3.
235 LD B,NLIN+1
236;LINE COUNTER.
237NSN3 PUSH BC
238;SAVE LINE COUNTER.
239 LD DE,ESCN-1
240;DESTINATION - END OF SCREEN
241 LD BC,SZSC
242;SIZE - SCREEN FULL.
243 LDDR
244;MOVE IT.
245 LD BC,SZSC-LLEN
246;1 SCREEN FULL LESS 1 LINE.
247 ADD HL,BC
248;RESET SOURCE ONE LINE ON.
249 CALL DPLY
250;DISPLAY AND PAUSE.
251 POP BC
252;RESTORE LINE COUNTER.
253 DJNZ NSN3
254;WHOLE SCREEN MOVED?
255 CALL RESR
256;RESTORE REGS.
257 RET
258;FINISH
259;
260;
261;SCREEN 4 - ROLL UP.
262SC4 CALL SAVR
263;SAVE REGS.
264 LD HL,SBF5-1
265;SOURCE - END OF SBF4.
266 LD DE,ESCN-1
267;DEST. - END OF SCREEN.
268 LD B,NLIN
269;LINE COUNTER.
270NLN4 PUSH BC
271;SAVE LINE COUNTER.
272 LD BC,LLEN
273;SIZE - 1 LINE.
274 LDDR
275;MOVE IT.
276 CALL DPLY
277;DISPLAY AND PAUSE.
278 POP BC
279;RESTORE LINE COUNTER.
280 DJNZ NLN4
281;SCREEN FULL?
282 CALL RESR
283;RESTORE REGS.
284 RET
285;FINISH
286;
287;
288;SCREEN 5 - PUSH UP.
289SC5 CALL SAVR
290;SAVE REGS.
291 LD HL,SBF5-1
292;SOURCE - END OF SBF4.
```

GOTO 6

```
293 LD B,NLIN+1
294;LINE COUNTER.
295NSN5 PUSH BC
296;SAVE LINE COUNTER.
297 LD DE,ESCN-1
298;DESTINATION - END OF SCREEN
299 LD BC,SZSC
300;SIZE - SCREEN FULL.
301 LDDR
302;MOVE IT.
303 LD BC,SZSC+LLEN
304;1 SCREEN FULL PLUS 1 LINE.
305 ADD HL,BC
306;RESET SOURCE ONE LINE BACK.
307 CALL DPLY
308;DISPLAY AND PAUSE.
309 POP BC
310;RESTORE LINE COUNTER.
311 DJNZ NSN5
312;WHOLE SCREEN MOVED?
313 CALL RESR
314;RESTORE REGS.
315 RET
316;FINISH.
317;
318;
319;SCREEN 6 - 4 BAR ROLL DOWN.
320SC6 CALL SAVR
321;SAVE REGS.
322 LD HL,SBF6
323;SOURCE - START OF SBF6.
324 LD DE,SSCN
325;DESTINATION - START OF SCRN
326 LD B,10H
327;NO. OF LINES/BAR.
328NBR6 PUSH BC
329;SAVE LINE COUNTER.
330 LD B,4H
331;NO. OF BARS.
332NLN6 PUSH BC
333;SAVE BAR COUNTER.
334 LD BC,LLEN
335;SIZE - 1 LINE.
336 LDIR
337;MOVE IT.
338 LD BC,200H-LLEN
339;INC. FOR START OF NEXT BAR.
340 ADD HL,BC
341;POINT TO START OF NEXT BAR.
342 EX DE,HL
343;SWAP SOURCE AND DEST.
344 ADD HL,BC
345;POINT TO START OF NEXT BAR.
346 EX DE,HL
347;SWAP DEST AND SOURCE.
348 POP BC
349;RESTORE BAR COUNTER.
350 DJNZ NLN6
351;4 BARS DONE?
352 LD BC,SZSC-LLEN
353;DEC. FOR NEXT LINE.
354 OR A
355;RESET C-FLAG.
356 SBC HL,BC
357;POINT TO NEXT SOURCE LINE.
358 EX DE,HL
359;SWAP SOURCE AND DEST.
360 OR A
361;RESET C-FLAG.
362 SBC HL,BC
363;POINT TO DEST.
364 EX DE,HL
365;SWAP DEST AND SOURCE.
366 CALL DPLY
367;DISPLAY AND PAUSE.
368 POP BC
369;RESTORE LINE COUNTER.
370 DJNZ NBR6
371;SCREEN FINISHED?
372 CALL RESR
373;RESTORE REGS.
374 RET
375;FINISH.
376;
377;
378;SCREEN 7 - L TO R SWEEP.
379SC7 CALL SAVR
380;SAVE REGS.
381 PUSH IX
382 PUSH IY
383 LD IX,SBF7
384;POINT TO INCOMING BYTE.
385 LD IY,SSCN
386;POINT TO REPLACED BYTE.
387 LD B,LLEN
388;SET COLUMN COUNTER.
389NCL7 PUSH BC
390;SAVE COLUMN COUNTER.
391 LD H,OFFH
392;PIXEL MASK TEMPLATE.
393 LD B,4
394;SET PIXEL COUNTER.
395NPX7 PUSH BC
396;SAVE PIXEL COUNTER.
397 SRL H
398;SHIFT MASK FOR RH. PIXEL
399 SRL H
400;PRESERVATION IN H-REG.
401 LD A,H
402;PUT MASK INTO ACC.
403 CPL
404;.NOT.MASK IN ACC.
405 LD L,A
406;NOT.MASK IN L-REG. FOR
407;LH. PIXEL PRESERVATION.
408 LD B,NLIN
409;SET LINE COUNTER.
410NLN7 LD A,(IX+ZERO)
411;PUT INCOMING BYTE INTO ACC.
412 AND L
413;MASK OUT RH. PIXELS.
414 LD D,A
415;SAVE LH. PIXELS.
416 LD A,(IY+ZERO)
417;PUT REPLACED BYTE INTO ACC.
418 AND H
419;MASK OUT LH. PIXELS.
420 OR D
421;LOGICAL ADD RH & LH PIXELS.
422 LD (IY+ZERO),A
423;UPDATE SCREEN.
424 LD DE,LLEN
425;INC. BY 1 LINE.
426 ADD IX,DE
427;POINT TO NEXT LINE/INCOMING
428 ADD IY,DE
429;POINT TO NEXT LINE/REPLACED
430 DJNZ NLN7
431;SEE IF LINES FINISHED?
432 CALL DPLY
433;DISPLAY AND PAUSE.
434 LD DE,BIG-SZSC
435;DEC. TO RETURN TO TOP OF
436;CURRENT COLUMN.
437 ADD IX,DE
438;POINT TO TOP OF CURRENT COL
439 ADD IY,DE
440;POINT TO TOP OF CURRENT COL
441 POP BC
442;RESTORE PIXEL COUNTER.
443 DJNZ NPX7
444;SEE IF ALL PIXELS FINISHED?
445 INC IX
446;POINT TO NEXT COLUMN.
447 INC IY
448;POINT TO NEXT COLUMN.
449 POP BC
450;RESTORE COLUMN COUNTER.
451 DJNZ NCL7
452;SEE IF COLUMNS FINISHED?
453 POP IY
454 POP IX
455 CALL RESR
456;RESTORE REGS.
457 RET
458;FINISH.
459;
460;
461;SCREEN 8 - R TO L SWEEP.
462SC8 CALL SAVR
463 PUSH IX
464 PUSH IY
```

GOTO 7

```
465 LD IX,SBF8+1FH
466;TOP OF R.H. COL.
467 LD IY,SSCN+1FH
468;TOP OF RH. COL. ON SCREEN.
469 LD B,LLEN
470NCL8 PUSH BC
471 LD H,OFFH
472 LD B,4
473NPX8 PUSH BC
474 SLA H
475 SLA H
476 LD A,H
477 CPL
478 LD L,A
479 LD B,NLIN
480NLN8 LD A,(IX+ZERO)
481 AND L
482 LD D,A
483 LD A,(IY+ZERO)
484 AND H
485 OR D
486 LD (IY+ZERO),A
487 LD DE,LLEN
488 ADD IX,DE
489 ADD IY,DE
490 DJNZ NLN8
491 CALL DPLY
492 LD DE,BIG-SZSC
493 ADD IX,DE
494 ADD IY,DE
495 POP BC
496 DJNZ NPX8
497 DEC IX
498 DEC IY
499 POP BC
500 DJNZ NCL8
501 POP IY
502 POP IX
503 CALL RESR
504 RET
505;
506;
507;MOVE SCREEN BUFFER TO VRAM.
508;DO IT IN TWO HALVES AS THE
509;PROCEDURE IS INTERRUPT
510;DRIVEN AND MUST BE
511;ACCOMPLISHED IN 4.49 MSECS.
512;TO AVOID FLICKER.
513;1K BLOCK MOVE TAKES
514;6.09 MSECS. ON 3.54MHZ Z80.
515;(NEAR ENOUGH!)
516;
517MTOP LD HL,SSCN
518 LD DE,VRAM
519 LD BC,HSZC
520 LDIR
521;MOVE TOP HALF SCREEN BUFFER
522 DI
523 LD BC,MBOT
524;SWAP INTERRUPT VECTOR
525;TO OTHER HALF.
526 LD (IVEC+1),BC
527 EI
528 RET
529;
530;
531MBOT LD HL,SSCN+HSZC
532 LD DE,VRAM+HSZC
533 LD BC,HSZC
534 LDIR
535;MOVE BOTTOM HALF SCRN. BUF.
536 DI
537 LD A,TURN
538 LD (IVEC),A
539;SET INTERRUPT VECTOR TO RET
540;AS BOTH HALVES ARE MOVED.
541 EI
542 RET
543;
544;
545;INTERRUPT DRIVEN DISPLAY
546;ROUTINE. A PAUSE IS DONE
547;SO THAT THE TOP AND BOTTOM
548;HALVES OF THE SCREEN CAN BE
549;MOVED FROM THE SCREEN
550;BUFFER TO VRAM.
551;NB. BC REG. IS CHANGED BY
552;THIS SUBROUTINE.
553DPLY LD A,JMP
554 LD BC,MTOP
555 LD (IVEC+1),BC
556 LD (IVEC),A
557;SETUP INTERRUPT VECTOR.
558 EI
559 LD BC,DURD
560;DELAY MSEC.
561 CALL DLAY
562;DO A DELAY - DURING WHICH
563;TIME THE VRAM IS UPDATED.
564 DI
565 RET
566;RETURN TO MOVE ROUTINES.
567END EQU $
```

IN BRIEF

More "fun" being had by the Victorian police force trying to track down an alleged gaming syndicate after Tattersalls lotto giant found that unauthorised entries for a $12 million superdraw had taken place. More than 4000 entries had been seized.

•

Microbee is hanging on by the skin of its teeth. The company apparently owes about $3 million. The creditors voted to accept 5 cents in the dollar.

•

South Australian firm Micro Byte is hoping to have their pcs built in Latvia, the USSR. The firm manufactures around 550 pcs per month and exports up to 12% of those.

•

Big "Blue", IBM plan to sack or axe about 10,000 of its overseas employies. When this was announced its share price on Wall Street slipped down to 37.5 cents. Apparently IBM chiefs think that Australia is a good place to lift the share price and will not be giving Australian employies the "dear John letter".

JOHN D'ALTON VSOFTWAREZ.
39 AGNES ST. TOOWONG. QUEENSLAND.
AUSTRALIA.
'PHONE (07) 371 3707
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LE'VZ 200/300 OOP IS PUBLISHED APPROXIMATELY EVERY THREE MONTHS.

<<<<< FLIGHT PLAN >>>>>

This programme sent by Mr Ken Brazier can be used by small aircraft pilots.

```
10 CLS
12 GOSUB600
13 CLS
15 PRINT"          [illegible]"
16 PRINT
20 CLEAR1000
21 INPUT"NO. OF SECTORS";M:MM=M+1: CLS
22 DIMBO(M),CO(M),BH(M),CH(M),BZ(M),CZ(M),Z(M),DO(M),P(MM),PN(M)
23 DIMFL(M),V(M),W(M),WZ(M),EO(M),EH(M),EZ(M),JO(M),JH(M)
24 DIMJZ(M),GO(M),GH(M),GZ(M),IO(M),IH(M),IZ(M),GS(MM),SH(M)
25 DIMZH(M),CP(M),Q(M),TX(M),B(M),TA(M),FW(M),DW(M),R(MM),DR(MM)
26 DIMCT(MM),C(M),CX(M)
40 PRINT:PRINT"          [illegible]":PRINT
41 INPUT"TRUE AIR SPEED";A
42 INPUT"F/F OUT";Y
43 INPUT"F/F HOME";YH
44 INPUT"F/F FOR DEP ALT.";YX
45 INPUT"DEP. T.A.S.";AZ
51 CLS
52 FORN=1TOM
53 PRINT"          [illegible]"
54 PRINT
55 PRINT"          [illegible]";N
56 PRINT
60 INPUT"WIND SPEED OUT";BO(N)
65 INPUT"WIND DIRECTION OUT";CO(N)
70 INPUT"WIND SPEED HOME";BH(N)
80 INPUT"WIND DIRECTION HOME";CH(N)
81 PRINT" DEPRESSURISED"
82 INPUT"WIND SPEED HOME";BZ(N)
84 INPUT"WIND DIRECTION HOME";CZ(N)
90 INPUT"TRACK OUT";DO(N)
110 INPUT"DISTANCE IN N.MILES";Z(N)
150 V(N)=BO(N)/A
160 W(N)=BH(N)/A
165 WZ(N)=BZ(N)/AZ
170 EO(N)=(V(N)-(V(N)^3)/3)
180 EH(N)=(W(N)-(W(N)^3)/3)
185 EZ(N)=(WZ(N)-(WZ(N)^3)/3)
190 F=(180/3.1416)
200 JO(N)=EO(N)*F
210 JH(N)=EH(N)*F
215 JZ(N)=EZ(N)*F
220 GO(N)=CO(N)-DO(N)
230 GH(N)=CH(N)-(DO(N)-180)
235 GZ(N)=CZ(N)-(DO(N)-180)
240 IO(N)=SIN(GO(N)/F)
250 IH(N)=SIN(GH(N)/F)
255 IZ(N)=SIN(GZ(N)/F)
260 U=(COS((GO(N)-JO(N)*IO(N))/F))
270 K=(COS((GH(N)-JH(N)*IH(N))/F))
275 KZ=(COS((GZ(N)-JZ(N)*IZ(N))/F))
280 GS(N)=A-(BO(N)*U)
290 SH(N)=A-(BH(N)*K)
295 ZH(N)=AZ-(BZ(N)*KZ)
300 FL(N) =(Z(N)/GS(N))*Y:CLS
301 NEXT
302 FX=0
305 FORN=1TOM:FX=FX+FL(N):NEXT
319 FR=(FX*1.15)+(Y*.75)
320 PRINT"TOTAL FUEL REQUIRED";FR
330 INPUT"FUEL ON BOARD";FB
335 INPUT"TIME OF DEPARTURE";T
337 TE=T-INT(T):TI=(TE/60)*100:TP=(T-TE)+TI
340 FX=FX+(FB-FR)
341 IFM=1,PN=(FL(1)+(FB-FR))/((Y/GS(1))+(YH/SH(1))):GOTO381
349 FORN=1TOM:PN(N)=FL(N)/((Y/GS(N))+(YH/SH(N))):NEXT
350 FORN=1TOM
351 FW(N)=(Z(N)/GS(N)*Y)+(Z(N)/SH(N)*YH):NEXT
352 FORN=1TOM:R(N)=R(N-1)+FW(N):NEXT
353 IFFX<R(1),XP=FX/((Y/GS(1))+(YH/SH(1))):GOTO378
357 FORN=1TOM:IFFX=>R(N)ANDFX<R(N+1)THENXP=FX-R(N)
358 PN=XP/((Y/GS(N))+(YH/SH(N))):NEXT:GOTO380
378 PN=XP
380 O=0:FORN=1TOM:O=O+FW(N):IFO>FXTHEN382ELSENEXT
381 O=0:FORN=1TOM:O=O+Z(N):IFO>PNRTHEN382ELSENEXT
382 IFPNR<=Z(1)THENPNR=PNR:IFN<=1THEN390
390 PRINT"P.N.R.";PNR;"N.M";
391 PRINT" INTO SECT.";N
392 NT=N-1:FORN=1TONT
400 TA(N)=(Z(N)/GS(N))
405 NEXT
406 IFNT=0,TA=PN/GS(1)+TP:GOTO408
407 TA=0:FORN=1TONT:TA=TA+TA(N):NEXT:TA=TA+PN/GS(N)+TP
408 IFTA>=24THENP$=" NEXT DAY"
409 IFTA>24THENTA=TA-24
410 PRINT" AT";INT(TA);".";
420 TM=(TA-INT(TA))*60
425 TM=TM+.5:TM=INT(TM)
430 PRINTUSING"##";INT(TM);
435 PRINTP$
438 FORN=1TOM:B(N)=Z(N)/GS(N):NEXT
440 FORN=1TOM:BF=BF+B(N):NEXT:BP=BF/2
442 FORN=1TOM:C(N)=Z(N)/GS(N):NEXT
444 FORN=1TOM:CT(N)=CT(N-1)+C(N):NEXT
445 IFBP<CT(1),448
446 IFBP=>CT(1),450
448 CP=BP*GS(1):GOTO455
450 FORN=1TOM:IFBP=>CT(N)ANDBP<CT(N+1)THENBT=BP-CT(N)
452 CP=BT*GS(N):NEXT
453 FORN=1TOM:CX(N)=(Z(N)*SH(N))/(GS(N)+SH(N)):NEXT
454 CX=0:FORN=1TOM:CX=CX+CX(N):NEXT
455 H=0:FORN=1TOM:H=H+Z(N):IFH>CXTHEN458ELSENEXT
457 IFCX<=Z(1),CX=CX:IFN<=1THEN484
458 FORJ=1TOM:P(J)=P(J-1)+Z(J):NEXT
459 FORJ=1TOM:IFCX>=P(J)ANDCX<P(J+1)THENCX=CX-P(J):NEXT
460 NP=N-1
484 PRINT"C.P  ";CP;"N.M";
```

GOTO 9

```
485 PRINT" INTO SECT.";N
486 FORN=1TONP:Q(N)=(Z(N)/GS(N)):NEXT
487 IFNP=0,Q=CP/GS(1)+TP:GOTO489
488 Q=0:FORN=1TONP:Q=Q+Q(N):NEXT:Q=Q+CP/GS(N)+TP
489 IFQ>=24THENV$=" NEXT DAY"
490 IFQ>24THENQ=Q-24
491 PRINT" AT";INT(Q);".";
492 X=(Q-INT(Q))*60
493 X=X+.5:X=INT(X)
494 PRINTUSING"##";INT(X);
495 PRINTV$
500 PRINT"DEPRESSURISED"
505 IFM=1,DP=(FL(1)+(FB-FR))/((Y/GS(1))+(YX/ZH(1))):GOTO526
510 FORN=1TOM:PN(N)=FL(N)/((Y/GS(N))+(YX/ZH(N))):NEXT
511 DP=0
512 FORN=1TOM
513 DW(N)=(Z(N)/GS(N)*Y)+(Z(N)/ZH(N)*YX):NEXT
514 FORN=1TOM:DR(N)=DR(N-1)+DW(N):NEXT
515 IFFX<DR(1)THENXD=FX/((Y/GS(1))+(YX/ZH(1))):GOTO521
519 FORN=1TOM:IFFX>DR(N)ANDFX<DR(N+1)THENXD=FX-DR(N)
520 DP=XD/((Y/GS(M))+(YX/ZH(M))):NEXT: GOTO525
521 DP=XD
525 SP=0:FORN=1TOM:SP=SP+DW(N):IFSP>FXTHEN527ELSENEXT
526 SP=0:FORN=1TOM:SP=SP+Z(N):IFSP>DPTHEN527ELSENEXT
527 IFDP<=Z(1)THENDP=DP:IFN<=1THEN542
542 PRINT"P.N.R.";DP;"N.M";
543 PRINT" INTO SECT.";N
544 ND=N-1:FORN=1TOND:TX(N)=(Z(N)/GS(N)):NEXT
545 IFND=0,TX=DP/GS(1)+TP:GOTO548
546 TX=0:FORN=1TOND:TX=TX+TX(N):NEXT:TX=TX+DP/GS(N)+TP
548 IFTX>=24THENW$=" NEXT DAY"
549 IFTX>24THENTX=TX-24
550 PRINT" AT";INT(TX);".";
560 TQ=(TX-INT(TX))*60
565 TQ=TQ+.5:TQ=INT(TQ)
570 PRINTUSING"##";INT(TQ);
571 PRINTW$:B=0:FORN=1TOM
572 B(N)=Z(N)/GS(N):NEXT:FORN=1TOM:B=B+B(N):NEXT:B=B+TP
573 IFB>=24THENZ$=" NEXT DAY":IFB>24THENB=B-24
574 PRINT"ARRIVAL TIME"
575 IFB>=24THENZ$=" IN TWO DAYS TIME":B=B-24
576 PRINT;INT(B);".";
578 BT=(B-INT(B))*60
579 BT=BT+.5:BT=INT(BT)
580 PRINTUSING"##";INT(BT);
590 PRINTZ$
598 GOSUB705
599 GOTO13
600 CLS
630 PRINT"              [illegible]"
640 PRINT"THIS PROGRAM IS FOR WORKING OUT":PRINT
650 PRINT"P.N.R. AND C.P. FOR TRIPS WITH":PRINT
660 PRINT"MORE THAN ONE SECTOR.ALSO FOR":PRINT
670 PRINT"WORKING OUT DEPRESSURISED P.N.R":PRINT
680 PRINT"IT GIVES HOW MANY N.M. IT IS":PRINT
690 PRINT"INTO WHICH SECTOR ALSO THE TIME":PRINT
700 PRINT"WORKING ON A 24 HOUR CLOCK.";
705 PRINT@480,"   PRESS [illegible] TO CONTINUE";
710 K$=INKEY$:I$=INKEY$
720 I$=INKEY$:IFI$=""THEN720
730 IFI$<>" "THEN720
740 RETURN
```

* * 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 - Sept/October 1989.

1. Relocating DOS C/R.
2. 64K RAM Pack and Hi-Res.
3. Boolean Logic Funcions.
4. VZ 200 34K RAM Modsifications.
5. Suite II Continued for Disc users.
6. IPL Sequence Decoded.

VZ DOWN UNDER Sept/October 1989.

1. Disc Drive Indicator.
2. Z80 MPU Flag Operations.
3. Traps for young players.
4. Games Column.
5. Screem Sheet.
6. Animation & Graphics - LIVEN-UP.
7. BASIC Made Easy.

VZ DOWN UNDER November/December 1989.

1. Boolean Logic Functions.
2. BASIC made easy.
3. READ, DATA and POKE Commands.
4. ROTATE Game - A BASIC Prog.

```
10 '**********************
20 '* WORD GAME VER.  1.0*
30 '*                    *
40 '* DARRYL LYNCH 1989  *
50 '**********************
100 REM
110 CLEAR 1000
120 DIM A$(20):DIM G$(25):DIM L$(25)
130 T=0:G=0:S=0
140 REM
150 DATA ELEPHANT,FALCON,RAILWAY,HORSE,COMPUTER SYSTEM
160 DATA MAN IN THE MOON,MEMORY CHIPS,SOFTWARE
170 DATA ANIMAL WITH LONG MEMORY,BIRD WITH WHEELS,STEEL ROAD
180 DATA OPENED UP THE WEST,YOUR USING ONE NOW,MYTHICAL BEING
190 DATA ELECTRIC STORAGE,THIS IS AN EXAMPLE OF SOME
200 REM
210 FOR X=1 TO 16
220 READ A$(X)
230 NEXT X
240 REM
250 R=RND(8):IF R=0 THEN 250
260 Q$=A$(R):QC$=A$(R+8)
300 REM
310 CLS:PRINT:PRINT
320 FOR X=1 TO LEN(Q$)
330 G$(X)=LEFT$(Q$,X)
340  L$(X)=RIGHT$(G$(X),1)
350 IF L$(X)=" " THEN PRINT " ";:S=S+1:GOTO 370
360 PRINT "?";
370 NEXT X
380 PRINT:PRINT
390 REM
400 PRINT"[illegible]"
410 PRINT"      ";QC$
420 PRINT@294,"ENTER A LETTER "
430 PRINT
440 INPUT "YOUR GUESS ";IN$
441 FOR X=28735 TO 28768
442 IF PEEK(X)=ASC(IN$) THEN SOUND 1,1;1,2:GOTO 420
443 NEXT X'CHECK FOR RECURRING LETTERS AND IGNORE THEM
450 G=G+1
460 REM
470 FOR X=1 TO LEN(Q$)
480 IF IN$=L$(X) THEN PRINT@(63+X),IN$:GOTO 510
490 NEXT X
500 SOUND 1,1:GOTO 420
510 T=T+1:SOUND 1,3;5,7;4,1;9,3;8,2;5,2;7,1
520 REM
530 IF T=(LEN(Q$)-S)THEN 540 ELSE 490
540 REM
550 CLS:PRINT"YOU GUESSED IT IN ";G;"TRIES!!!"
560 REM
570 IF G<=LEN(Q$) THEN PRINT"EXCELLENT":GOTO 600
580 IF G<=LEN(Q$)+5 THEN PRINT"WELL DONE":GOTO 600
590 IF G>LEN(Q$)+10 THEN PRINT"NOT SO GOOD" ELSE PRINT"OKAY"
600 SOUND 1,2;5,3;8,4;9,2;3,1;2,9;5,8;8,1
610 PRINT:PRINT
```

```
620 PRINT"DO YOU WANT TO PLAY AGAIN [illegible] "
630 A$=INKEY$:A$=INKEY$
640 IF A$="Y" THEN 110
650 IF A$="N" THEN END ELSE 630
```

LE'VZ FORMATS.

To help me time-wise to make LE'VZ a better magazine, and yourself to get the most out of it, please read this page.

ALL PRICES are in Australian Dollars.

CURRENT ISSUE price is A$2.00 which includes surface/air postage within Australia and Air Mail to New Zealand. If you require more than one copy at one time, extra money must be sent to cover postage.

BACK ISSUES are from #18 to the current issue. The price is $3.00 each. This includes surface/air postage within Australia and Air Mail to New Zealand. If you require more than two copies at one time, extra money must be sent to cover postage.
We have most Back Issues in stock so we send what we have. If they are not sent within a couple of months, or with the next Current issue, please remind us.

ANY COMMUNICATION to me that requires a written reply must be accompanied by a Self Addressed Stamped Envelope. Do not expect an immediate reply, as I may need to contact others to formulate an answer.
Always state your record number. That could be between A02 and A98, B01 and B98 or C01 and C98. I have about 240 financial and unfinancial folk to keep track of. From LE'VZ #15, your record number and $ credit are printed at the top of your name and address label.

DO NOT TELEPHONE ME ON SUNDAY!!!

CIRCUIT, ROM and PROGRAMME LISTING PRINTOUTS can be sent to you at 20C per A4 page plus postage. Do not ask for the complete VZ ROM listing as it is very long and is about 15MM in thickness.

LETTERS TO THE EDITOR are welcome either as general comments, complaints or asking for help. As with contributors, please ensure that your typewriter or printer prints clear and DARK. In the new 35 character normal size print, IE. 90MM line length, right justified or wragged. If you have to write by hand, use a RED pen and write in the format just mentioned.

ADVERTISING is a free service to OOPs who are financial, for personal use only. Please use the above 35 character format. About 100 words or less.

CONTRIBUTIONS are very welcome. Please write your letter on a separate piece of paper to your contribution, which allows separate filing of material. You can send in programme listings in M/L or BASIC. Hardware modification or equipment drawings. Hints and any useful information. As above, use the new 35 character format except if it is a large circuit, drawing or photo. If it is a full page contribution reduce by photo copying so that there is a 20MM margin all the way around.
In fact I would like to receive more hardware contributions. Also photos of your equipment would interest others. There is a little problem here though as different photo copyiers reproduce certain colours differently. We can but try.

BASIC AND M/L PROGRAMME LISTINGS need special requirements.
Programme listings in M/L or BASIC can be sent as printed in normal size print which I can reduce-copy to make the master. Please make sure the print is dark and clear. The better approach is to send the programme on disc or tape. This enables me to give it a short test and check that it does at least does RUN. I can then print it in reduced mode while <LISTing> it.

The other method that I can now use is to convert the *BASIC* programme into a file suitable for use with our *QUICKWRITE TEXT EDITOR* and printed in the preferred column size, IE 80MM width. Note that due to "line wrap-around" when printing a line with less than 55 characters there will be lines that appear to not have a *BASIC* line number.

W files made with the D.S.E. Editor Assembler can also be loaded into our *QUICKWRITE TEXT EDITOR*, edited and printed as required.

TAPE/DISC CONTRIBUTIONS are therefore the best to send in this regard. This applies to programme listings or text. In regards to text, please send on E&F Wordprocessor tape which I can convert to QUICKWRITE Wordprocessor files or QUICKWRITE files on disc. Send in a padded post bag, and we will return it to you as soon as possible. We will pay the return postage. In this way if it is a programme, it can be later issued as a PUBLIC DOMAIN programme. You must let me know if you will allow this to happen.

Finally, I do not promise to print any or all contributions, this is at my discretion.

Muchas Gracias.

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.

SOFTWARE FOR SALE FROM VSOFTWAREZ

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

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. I have printed a list of software writers who may supply items direct to purchasers. 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.

* * SUPURB 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.

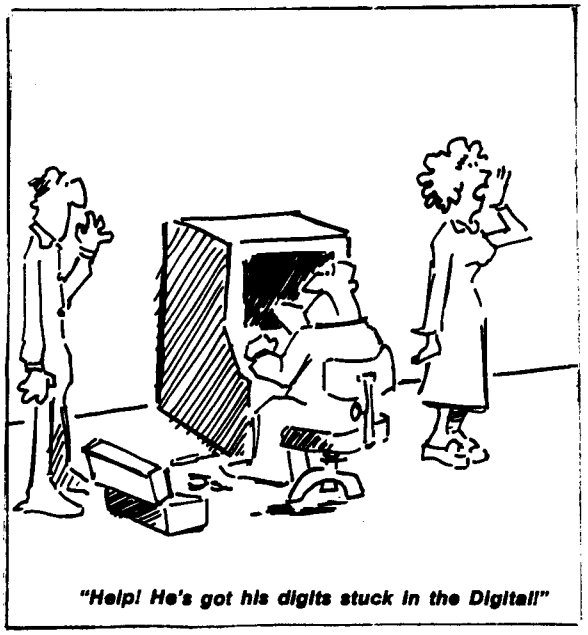
+ EXISTING SOFTWARE +

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.



"Help! He's got his digits stuck in the Digital!"

SOFTWARE DISCRIPTION

This is a discription of the software that we continue to sell.

DB57 QUICKWRITE V4 $40.00. VZ3-VZ4.

This M/L WORDPROCESSOR is a more versitile version of the earlier unit, V3. It does NOT replace V3. The main differences being that printer print styles can be changed ANYWHERE in the text, not only from the beginning of a line as in V3. The user builds up a library of special codes to suit the printer which are embedded anywhere in the text. These are saved to disc for use as required. Scrolling to start, end and up and down is possible. Printing only a portion of text is also allowed. Disc commands, Kill and Retrieve are new.

Folk who already have V3 can purchase V4 at the discount price of A$20.00.

D/TG58 FACTORY. $15.00. VZ4.

This is Larry Taylors newest programme. It could be classified as an Educational unit as there is plenty of "brain work required". It is a fully ***High Resolution*** unit except for the first set of instructions.

FACTORY is a problem solving educational game for all ages. The main aim is to duplicate a product which has been produced by the VZ or by someone else. To do this, a factory is set up, which can consist of up to eight machines of three types. These are ROTATE, STRIPE and PUNCH. Using these machines, a square blank can be transformed into a finished product.

FACTORY will provide many hours of challenging and rewarding entertainment for all those who enjoy solving a puzzle.

DB4 LE'VZ D'BASE. $ 50.00. VZ3-VZ4.

For personal or small business use. Random access records on disc. An 80 column printer is catered for but not ecssential.

Create files — Add records to files
Edit records — Delete and Renumber
View and/or print records from any position in files, or any random selection
Report prints — Address label prints
Search with or without indexing of records
Save the index on disc — Exchange two records
and many more, a discription sheet is available to those who are interested..

T/DB1 CASHBOOK LEDGER $ 20.00. VZ3-VZ4.

This is a business unit whereby you type in; date, paid to, cheque number, bank $ column and 12 other money columns.

The data can be viewed, additions of the bank column and all of the other columns must be equal, if not corrections can be made.

The data can be saved onto tape at any time, usually after each data entry time.

Data is then loaded back at the end of the month, or when necessary, the additions as described above can again be checked and corrected if required.

Then if all is correct the data is printed out complete with headings. If there is still an error in the money columns it is stated at the bottom of the printout. Corrections can again be made and another printout done.

Because of the number of columns the 'left side' is printed first then the 'right side' on A4 paper on a GP100 printer or similar.

DB16 CHEQUE LEDGER DISC $ 40.00. VZ3-VZ4.

A small business unit based on T/B1 (CASHBOOK LEDGER) but for Disc operation only, in that all data is saved/loaded to/from Disc.

Type in :- date, paid to, cheque #, bank $ and 12 other $ columns. View data, correct (edit) data, printout of all data across two A4 sheets of paper by printing the left side then the right side. This allows an [illegible]

than an expensive wide business type.

Each "type in session" is saved to Disc, which is loaded in at the next session so that new data is typed in and merged. This is then saved to Disc. In this way the month's or period's file is built up ready to be printed at the close of the month/period.

At the close of that month/period, the final figures are saved on disc, so that they are used for the next month totals. All $ totals are then calculated and printed at the bottom.

abels.

D/TU19 COPY/PROTECT. $ 20.00. VZ1-VZ4.

Incorporates two programmes BREAKPROOF and FILECOPIER. Using BREAKPROOF on BASIC programmes produces versions which autorun and will automatically restart if the <BREAK> key is pressed. FILECOPIER allows the transfer of MOST BASIC and Machine Code programmes to or from tape or disc.

T/DU49 VZ-EPSON P/PATCH. $ 10.00. VZ1-VZ4.

Larry Taylor's new M/L unit. It allows Epson or Epson compatible printers to LPRINT or LLIST all of the VZ's inverse and graphic characters. These same characters can also be dumped to the printer from the LO-RES screen in the COPY mode.In MODE(1), use of the COPY command will also dump the HI-RES screen to the printer.

COPY,n, allows a range of 4 to 8 to be selected to allow for varying line feeds for different printers. The utility adjusts for any size VZ memory. It also prints the Extended Basic commands that are used if a programme is written using the Extended Basic utility. Very handy! It can even be used with the Extended Basic utility loaded. A second command, LTAB(n), allows a left margin from 0 to 31 to be selected. This is for <LLISTing> a BASIC programme.

DU56. DISKOPS4. $10.00. VZ3-VZ4.

This is actually called DISKOPS4 + 2. It superceedes DU47 DISKOPS2 AND DU47A DISKOPS2 which are now Public Domain at the same price of $10.00.

There are three separate utilities on the disc, and are for use with the DSE. Editor Assembler unit. There are eleven additional commands. Instructions are included. DISKOPS4 + 2 patches in permanently with ED/ASS. It then allows LOADing, SAVEing of source code and BSAVEing object code to/from disc. BSAVEing is the same as TO: for tape.

It also includes the normal disc BASIC commands. If a disc error occurs, then DISKOPS4 + 2 BASIC is entered. ASS is to enable the return to the ED/ASS. BASIC does the reverse.

Users of DISKOPS1 and 2 are also catered for.

D/TG50 ESCAPE RIVER. $ 8.00. VZ3-VZ4.

A game by Larry Taylor for two to six players. Players must work together to build a raft before a big flood arrives. The top four text lines are in Low Res. while the rest of the VDU. is in High Res. depicting the river, trees, people and so on.

HARDWARE AND FIRMWARE FOR SALE.

VSOFTWAREZ, 39 Agnes St., TOOWONG. QLD. 4066.
AUSTALIA. '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 Feb 1990. 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.

* * LAST LE'VZ #27 MAY 1990 * *

As mentioned in my Editorial I will be publishing only one more magazine, #27 May 1990.

If YOUR credit after this #26 magazine is $5 or over then I will send you an Australia Post Money Order for $1.00. OR MORE.

This is calculated thus:-

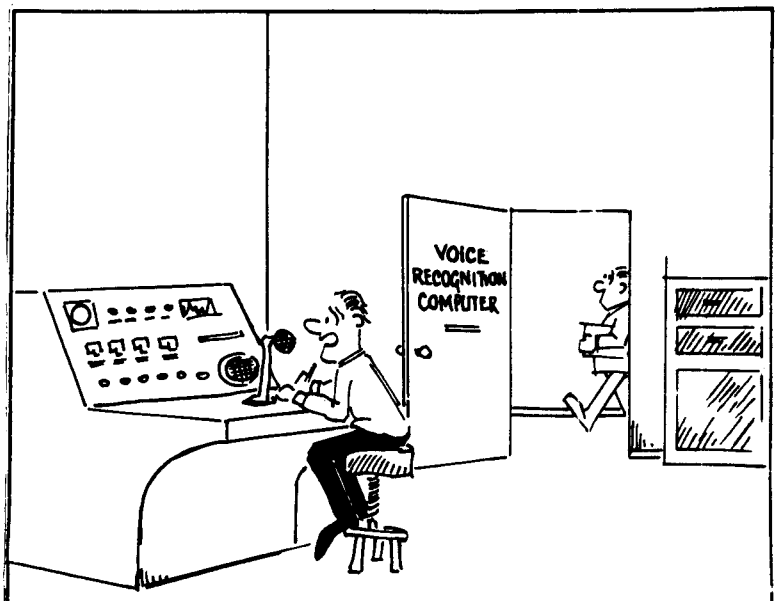
$2.00 for the last magazine
$2.00 for post and money order
$1.00 value of credit

$5.00 total.

There are a few OOPs who will receive around $15.00 credit.

Who covereth the heaven with clouds, who prepareth rain for the earth, who maketh grass to grow upon the mountains.

PSALM 147:8



Look — I'm sorry for what I said about you, I didn't mean it, now will you please get on with the program!