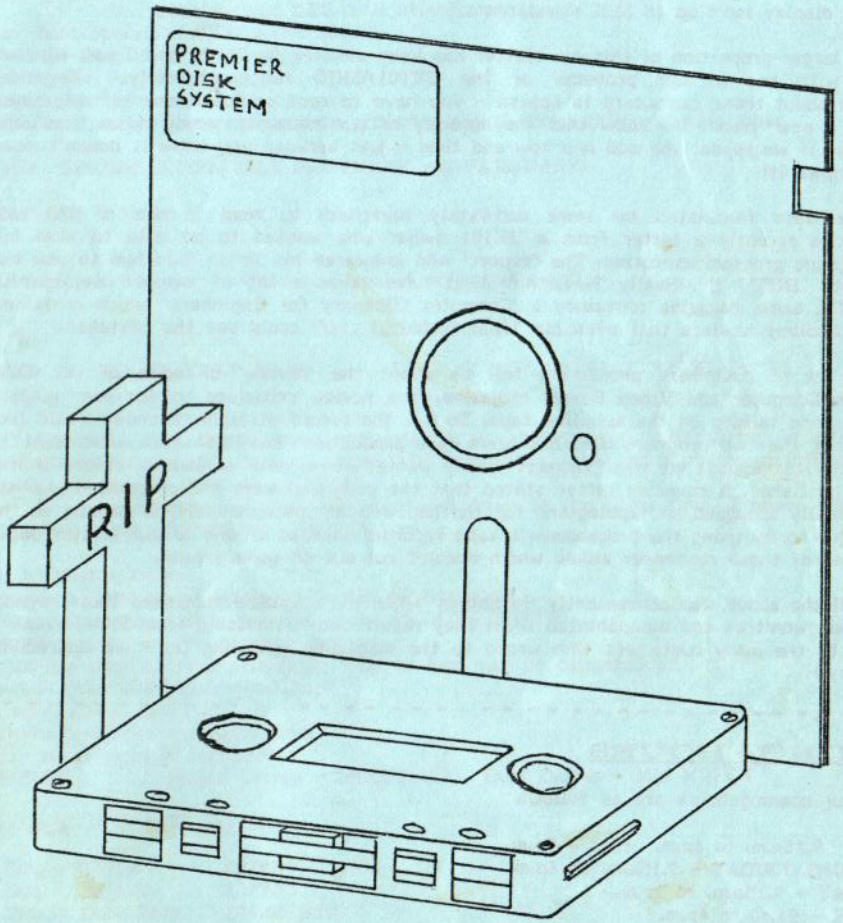
PREMIER PUBLICATIONS

# M A R C H  1 9 8 2

# N E W S L E T T E R

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# FEBRUARY 1982 NEWSLETTER

Once again, our newsletter brings many new and exciting products, including SARGON chess, UK101/OHIO disk system, Books, Cassettes, a new language (FORTH), top quality Video Monitors, PSU kits,etc. We never cease to be surprised by the popularity of Premier's newsletter - customers have been ringing since Christmas to ask when it would be published.

The runaway success of our Screen Enhancement Kit has surprised us. When we made the regrettable decision to increase the price, we feared that many customers would be put off. Quite the opposite has happened - the SEK has been by far and away our 'Best Seller' since its release. For £56.00 it gives facilities that we cannot find on any other computer, no matter what the price. We have recently installed a large screen option on our Apple - it cost £200.00, and gives only two screen sizes which have to be selected with a hardware switch. Its display isn't up to SEK standards either!

A larger proportion of this newsletter has been devoted to 'Hints and Tips', whether connected with one of our products or the UK101/OHIO range generally. Technical Information about these computers is sparse - you have to read endless computer magazines to pick up a new 'trick'. We know that the majority of our customers enjoy these 'tips' and we apologise if we repeat the odd one now and then - just because you know it doesn't mean everyone knows it!

We were fascinated (or more accurately horrified) to read in one of the new computer rags recently a letter from a UK101 owner who wanted to be able to scan his keyboard during program execution. The 'expert' who answered his letter told him to use the BASIC word INPUT !! Really ?.....that must have taken a lot of thought and careful research! The same magazine contained a 'Computer Glossary for Beginners' which contained so many schoolboy howlers that even our least technical staff could see the mistakes.

A lot of customers phoned to tell us about the 'review' of some of our ZX81 software in Computer and Video Games magazine. The review criticised us for poor quality instructions and talking on the supplied tape. To put the record straight, Premier would like to state that the two programs supplied were 'pre-production' samples which were sent to the magazine last August (at their request - they wanted some 'new' software), before it had even been published. A covering letter stated that the programs were pre-production and had not been finally debugged and apologised for the handwritten instructions. The talking on the tape was due to my using the programmer's tape recorder instead of one of our master decks - it had one of those condenser mikes which doesn't cut out on some inputs.

All the above was conveniently 'forgotten' when the magazine published their review. Perhaps they won't be too disappointed when they receive no advertising from Premier.....
(Thanks to the many customers who wrote to the magazine defending us - we appreciate your loyalty.)

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## OPENING HOURS

Our opening hours are as follows

MONDAY - 9.15a.m. to 6p.m. then 7-9p.m.
TUES, THURS, FRIDAY - 9.15a.m. to 6p.m.
WEDNESDAY - 9.15a.m. to 1p.m.
SATURDAY - 9a.m. to 4p.m.

CUSTOMER SERVICE - Monday evening 7-9p.m. Ring 01-659-7131 for enquiries/moans/a chat!! Either Mike or John will be on hand to answer questions. During the last few weeks, this service has been extremely popular, so you may need to try many times before you get through!
Please note that the phone is not manned outside the above hours.

## PHONE TECHNICAL ENQUIRIES

We get many phone calls every day concerning technical aspects of the UK101/OHIO range. The motto of PREMIER is 'help the customer all you can', but we would ask that you phone your technical enquiries between 4 and 6p.m., so that Mike can get some design work

## PREMIER DISK SYSTEM

PREMIER PUBLICATIONS are proud to announce that we can now supply a complete disk system for any UK101/OHIO machine. The system consists of Floppy disk card, single and double disk drive units, ROMDOS or OS65-D, cables, etc.

Specifications for the Floppy Disk Card are as follows:-

* Integral Data Separator which is link-selectable for on-drive separator if required
* Supports 4 x single-sided 5.25 or 8 inch drives or
  2 x double-sided 5.25 or 8 inch drives
* 1 or 2mhz operation (DOS permitting)
* Interrupt linkable if required.
* Padding for future options
* Shugart Bus as supplied
* Linkable to other Bus requirements providing signal compatibilty is maintained

* O S I SYSTEM COMPATIBLE (SOFTWARE and HARDWARE)

* DELIVERY - March

The card plugs into your J1 expansion socket or motherboard.

## DISK DRIVES DISK DRIVES

Premier's disk drives come complete in an attractive box containing drive(s) and integral power supply. All have an externally accessible fuse and a mains on/off switch. They are impressively quiet in operation.
If you purchase a Floppy Disk card and drive at the same time, Premier throw in the interface cable for nothing! Main features:-

* Ultra-reliable drives
* Capable of running in single or double density mode
* Storage Capacity - 80K (or 90K under PREMIER FORTH)
* Transfer rate - 125K bits per second
* Units are user address-selectable - up to four may be daisychained
* Shugart Standard Interconnections
* Integral power supply
* Externally accessible mains fuse
* LED 'drive running' indicator.
* DELIVERY Single Drives - IMMEDIATE. Dual Drives - Mid MARCH

### Prices (VAT inc)

| | |
|---|---|
| Single Drives | £229.95 |
| Dual Drives | £379.95 |
| Floppy Disk Card | £49.95 (kit) |
| | £62.95 (built & tested) |
| Single Disk Cable | £9.95 (free if FDC & Disk Unit purchased together) |
| Dual Disk Cable | £15.95 (free if FDC & Disk Units purchased together) |

NOTE!! P&P on the above drives is £10.00 extra per order.

# ROMDOS

ROMDOS has been commissioned and written specifically for the PREMIER Disk System. It is principally aimed at the user with a small capacity (12K+) RAM machine, but is also extremely useful for the larger RAM machine user since it allows BASIC programs to run with disk with little or no alteration.

ROMDOS links the standard BASIC-In-ROM with a disk controller program similar to and compatible with OS-65D. Under this system no RAM memory is used for the BASIC interpreter, giving an 8K saving in memory over the normal OS-65D system. The BASIC IN ROM continues to work at its normal high speed and is enhanced by a wide range of disk commands. The system has been written to be compatible with ALL Premier EPROM upgrades such as BASIC 4, BASIC 5, and TOOLKIT 2, so these EPROMS can still be used as before. Buying ROMDOS ensures that the EPROMS do not become redundant with a disk system.

Old cassette programs can be loaded from tape and transferred to disk. It should be noted that this system is far more advanced and flexible than the limited OSI PicoDOS. In a 32K RAM system, around 28K is available to the ROMDOS user, compared to around 20K with OS-65D.

ROMDOS takes around 4K of user memory. It is therefore possible to operate a realistic disk system with only one PREMIER RAM expansion card AND still have enough room to run nearly all your existing programs . It makes full use of the facilities provided by the CEGMON monitor, which is a compulsory fitment. ( A SYNMON/MON01 version of ROMDOS will not be released, and MON02 contains no disk bootstrap).

The one significant operating difference compared with the standard OS-65D is that ROMDOS does NOT support Sequential and Random Access files from BASIC. You will need to upgrade to the full OS-65D for these facilities.

ROMDOS features the following commands:-

| | |
|---|---|
| CALL NNNN=TT,S | Load track TT,sector S to memory location NNNN |
| DIR TT | Print Sector Map of track TT |
| EXAM NNNN=TT | Copy track TT to memory location NNNN |
| GO NNNN | Transfer program control to NNNN |
| HOME | Home drive to track zero |
| INIT | Initialise entire disk |
| IN TT | Initialise track TT only |
| KE | Exit BASIC and enter kernel |
| LOAD "XXXXXX | Load program XXXXXX into BASIC workspace |
| LOAD TT | Load program starting at track TT into BASIC w/space |
| PUT "XXXXXX | Saves program in workspace into a file named XXXXXX |
| PUT TT | Saves program in workspace to track TT |
| RE B | REturn to Basic from kernel |
| RUN XXXXXX | Loads and runs program called XXXXXX |
| SAVE TT,S=NNNN/P | Save mem location NNNN on track TT sector S for P pages |
| SELECT x | Select drive x (for up to four disk drives) |
| HELP | displays all ROMDOS commands with correct syntax shown |

In addition to the above enhancements,ROMDOS is supplied with three utility programs

| | |
|---|---|
| DISCUS | which is used for disk management |
| SYSGEN | which breeds new system discs |
| RIP | which is a track zero and track to track copier |

DISCUS is used to create, delete, rename, and print disk directories.

ROMDOS may be enhanced further using a specially written version of LINK65 (LINK 6) which adds many utilities in machine code. There is also a version of WORD WIZARD which makes full use of the memory freed by this new DOS.

ROMDOS has been written by Justin Johnson - the originator of the invaluable CEGMON linker program and LINK65 for 65D users. It is supplied as a two disk set and includes full documentation to enable you to get the most out of your disk system.

# SCOPYM a single disk copier

SCOPYM is the most important disk utility Premier have yet produced. It provides a fast, foolproof method of creating a new, useable disk from a Master. As any disk user will know, creating a new disk is a time-consuming occupation, involving several careful transfers.

SCOPYM will copy the first fourteen tracks of a disk in around 1.25 minutes.This time includes initialising the new disk! Only two disk swops are needed to copy the DOS, BASIC, DIR, BEXEC*, ASM and EX-Mon (if resident), and track zero. All copying is automatic; all the user has to do is press the space-bar when asked and answer one simple question (is ASM resident?). SCOPYM provides a safe, simple and extremely fast and efficient way of creating a new disk. It is supplied complete with comprehensive notes. The price of SCOPYM is as in the price list, and will normally be supplied on cassette with instructions for loading onto disk. However, it can either be supplied on disk for an additional £2.00 or it will be put onto your supplied disk for the cassette price (please CREATE a file two tracks long called SCOPYM).

# LINK 65 and LINK 6

This superb new suite of routines for the OS65D and ROMDOS disk system will simplify your disk operations enormously. The new commands are all called from BASIC, and being written in machine code, do not cause the loss of the resident BASIC program. The new words are:-

DISK!"DD - gives a double-column screen display of the disk directory contents, in under one second

DISK!"DU - allows you to DUmp a program to disk without having to create disk space for it - LINK65 does all the work for you

DISK!DE - allows you to DElete a program from the directory

DISK!"RN - allows you to REname a directory entry

DISK!"CR - allows you to CReate a file space for the resident BASIC program without losing it!

DISK!"ID - one simple command allows you to set up indirect files - you can now have two BASIC programs with conflicting line numbers in BASIC workspace, and access either

DISK!"BU - allows you to set up buffers (not LINK6)

DISK!"ZE - a ZEro file name facility

During extensive testing of these routines, their value to the programmer has become more and more apparent. No longer do you have to put your BASIC program in a temporary store while you create the correct track length file for it - simply type DISK!"DU PROG1 and LINK65 or LINK6 will create a file for the program and then dump it onto disk. If there is insufficient disk space or the program name already exists, you'll be informed.

Finding the contents of a disk has up to now required a BASIC program to be called - DISK!"DD will almost instantly produce a neat, double column listing of your disk contents without disturbing resident programs.

Indirect files now become a simple command - you can have two BASIC programs in workspace at once, use either one or merge them into one program.

In addition to the above features, LINK65/6 also produces FULL disk error messages, not simply a number which you have to look up! If the disk you are trying to write to is write-protected, LINK65 will tell you.

All of the routines can be used either from BASIC, the Assembler or the kernal - 'DD' from the kernal will produce the above mentioned directory display.

LINK65 and LINK6 come complete with a comprehensive user-booklet which will enable you to get the most from the routines. Availability is immediate. CEGMON must be resident. ROMDOS users should order LINK6, and OS65D owners LINK65.

# WHY A DISK SYSTEM ??.

The announcement of our disk system for the UK101/OHIO/TRS80/VG range will have started many of you thinking - 'Do I need a disk system and what are the advantages? Are they reliable?'

The first advantage of a disk system is that it gives extremely fast and reliable save and load facilities. An 8K program loads or saves in under three seconds. Add a few seconds for typing in the filename and in under ten seconds you could have any program on any disk ready to use, whether it's BASIC, FORTH or Machine Code.

A disk can contain a menu of programs which appear when the disk is 'booted'. Because the disk is random access rather than serial, any program can be loaded very quickly. This is one area where the disk system has a distinct advantage over ANY cassette/floppy tape system, no matter how sophisticated it may be. No matter how fast the tape transfer rate, you still have to wind manually through the cassette/floppy tape to find the program you want. In the case of the floppy tape system, you have to first find the directory, then the program. If the program is at the end of the tape or the directory is just before where you last stopped, a lengthy wait can be expected.

Are disks reliable? In over two years of use on UK101, OHIO, TRS80 and APPLE disk machines, I can count the number of bad 'boots' on one hand - and that is for all the machines COMBINED! As long as sensible precautions are taken with the diskettes, they are extremely reliable. If you are apt to rest your coffee on them or fold them to get them into your pocket, however, a disk system is not for you....

One area where care must be taken, however, is in disk 'management'. Just as a disk program can be loaded in a few seconds, many hours' work can also be overwritten in a few seconds by a careless 'dump' to disk. The advice 'always keep a second copy' is very relevant here! Since generating a back-up takes but a few seconds there really is no excuse whatever.

Disks allow you to call in several programs in succession without the operator doing anything. Taking the master disk I usually use with the UK101 as an example, after pressing RESET D it

a/ Loads in the OS65-D operating system
b/ Loads in 8K of nine-digit BASIC
c/ Loads in a BASIC EXECUTIVE program which modifies a and b slightly
d/ Loads in a CEGMON linker program and runs it.
e/ Loads in LINK65 - a disk utility program
f/ Loads in BASIC 5
g/ Tells you it's ready!

The above 'boot' takes around ten seconds, much longer than it took you to read it! It all happens automatically, with one program calling in the next one.

Another great advantage of the disk is its ability to store information for later retrieval. Files can be opened, read, updated, etc, with comparative ease. A comprehensive personal accounts system becomes simple. Putting names and addresses of your friends onto file becomes feasible. Cataloguing your record/stamp/coin collection combines two hobbies and gives a worthwhile addition to both hobbies.

Information on one file can be processed then put onto a new file on another or the same disk. Searching through a file (or several files) for a specific piece of stored data gives powerful information retrieval capabilities.

Data Base Management systems (soon to be available from Premier) give a flexible, useful tool and take a lot of the work out of programming, allowing you to concentrate on the content rather than the manipulation of it. Word Processors immediately come into their own, giving fast storage, retrieval and merge capabilities.

These are aspects of disks which the majority of our customers who come to our showrooms comment upon. They can see the new horizons which are immediately opened with disks - in effect, the computer stops being a powerful 'toy' and becomes an extremely powerful tool.



# DISK BASIC some entry points.

Information about OS65-D DISK BASIC is very hard to find. Here is a list of some useful entry points.

| | |
|---|---|
| 0078 | start of BASIC workspace - low byte |
| 0079 | start of BASIC workspace - high byte |
| 007A/B | end of BASIC program |
| 007C/D | end of single variable storage |
| 007E/F | end of array storage |
| 0080/1 | bottom of string storage |
| 0084/5 | end of memory for BASIC |
| 0086/87 | current line number |
| 0200-0265 | BASIC despatch table |
| 02E5 | LIST control enable=4C, disable=0A |
| 02EE | New control enable=4E, disable=0A |
| 0386-038C | BASIC message 'ERROR' |
| 0392-0398 | BASIC message 'OK' |
| 03A1-22FF | OSI 9 digit BASIC |
| 044E | BASIC error routine |
| 05A7 | tokenise line |
| 0662 | BASIC routine for NEW |
| 067C | BASIC routine for CLEAR |
| 0689 | BASIC routine for for LIST |
| 0748 | BASIC routine for FOR |
| 080A | BASIC routine for RESTORE |
| 0819 | CTRL C - enable=AD, disable=60 |
| 0828 | BASIC routine for STOP |
| 082A | BASIC routine for END |
| 0853 | BASIC routine for CONT |
| 086D | BASIC routine for NULL |
| 0873 | BREAK in line ..... |
| 087E | BASIC routine for RUN |
| 0889 | BASIC routine for GOSUB |
| 08D3 | BASIC routine for RETURN |
| 08F9 | BASIC routine for DATA |
| 0929 | BASIC routine for IF |
| 093C | BASIC routine for REM |
| 094C | BASIC routine for ON |
| 0B2C | BASIC routine for INPUT |
| 0B58 | BASIC routine for READ |
| 0C4B | BASIC routine for NEXT |
| 0F24 | BASIC routine for DIM |
| 1204 | BASIC routine for FRE |
| 12E9 | BASIC routine for STR$ |
| 13A4 | Garbage Collector |
| 1688 | BASIC routine for PEEK |
| 1693 | BASIC routine for POKE |
| 1700 | RE-ENTER EXMON |
| 2663-29EA | DOS routines |

The above list is by no means a full one - we could fill many pages with additional routines, if space permitted!

# GOING FORTH

Many of you may have heard or read about this fascinating alternative to BASIC as a language for microcomputers. The question is, of course, what can FORTH do for me? These notes try to provide a few answers.

First a historical note. FORTH was created by Charles H Moore at the USA National Radio Astronomy Observatory in 1969 and has been extensively developed at observatories and universities. The main boost to FORTH has been the FORTH Interest Group (FIG) and its European relatives, who have produced and distributed the FIG-FORTH model for most microprocessors.

But what is FORTH? FORTH is a Threaded Interpretive Language (which is rather a mouthful) but means that FORTH is based upon a series of function definitions held in a 'Dictionary'. Within this dictionary, each function or 'word' is linked to the previous one - hence threaded - and consists of a series of execution addresses which have been compiled for later execution by the inner interpreter.

Because of its, to say the least, unusual structure, FORTH acts like a cross between a compiler and an Interpreter with the result that its execution speed is at least ten times that of BASIC in ROM and would match that of many compiled languages.

Two examples:-

First, a 'do nothing' loop from 0 to 30,000 (FORI=0TO30000:NEXT) takes around 36 seconds in BASIC in ROM (UK101, 1Mhz). The equivalent FORTH routine when compiled and executed ( 30000 0 DO LOOP) takes 3.8 seconds. (Average of 5 tries)

More usefully, POKEing a value to every 2K screen location takes 8.4 seconds in BASIC and only 0.8secs in FORTH! If this is not fast enough for you, it is possible to compile directly machine code routines (or words) into the dictionary for execution at machine code speeds.

In view of the above, it is easy to see why FORTH was originally used for Process control and why it has also found favour as the main language in many commercial Arcade Games!

PREMIER PUBLICATIONS will shortly have available a version of FIG FORTH for the UK101 and OSI machines. The implementation has been carried out by Peter Rihan, our BASIC 5 and TK2 author. Versions will be available for disk (Late March) requiring 32K and one disk drive with Premier F.D.C. (or 610 board), and EPROM (March/April) which will run in 8K upwards. Premier's FORTH will be provided with FULL documentation to enable the user to get the most out of this superb language. The documentation also will be available separately as a reference and tutorial on FIG FORTH.

Below is a FORTH demonstration program, followed by the equivalent BASIC program. The BASIC program takes around 10secs to execute inspite of being written in BASIC 5 to speed it up, the FORTH under a second.

Note that only the last two lines of the FORTH program run the program - the rest of the program is defining 'words' which may be used elsewhere. To 'run' the FORTH, you would simply type FLASH.

```
( FORTH Demonstration Program)
HEX FORTH DEFINITIONS
: SCREEN D000 800 0  FILL  ;
: DELAY 1000 0 DO LOOP ;
: RECTANGLE 8 0 DO D310 I 40 * + 20 20 FILL LOOP ;
4F46 VARIABLE FORT  52 C,  54 C,  48 C,
4544 VARIABLE DEMO 4F4D , 534E , 5254 , 5441 , 4F49 , 4E C,
2020 VARIABLE BLANK 2020 , 2020 , 2020 , 2020 ,2020 , 20 C,
: KILL BLANK DUP D3D9 0D CMOVE ;
: TEXT FORT  D3DD 5 CMOVE DEMO D419 0D CMOVE ;
: FLASH CLS SCREEN RECTANGLE
    BEGIN KILL DELAY TEXT DELAY ?TERMINAL END ;

  DECIMAL FORTH DEFINITIONS ;S
```

```
5 FT$="FORTH":DEMO$="DEMONSTRATION":BLANK$="                    " : REM (13
spaces)
10 &SCR0
20 &BLK12,16,32,8,32
30 &PUTAT16,25,13,BLANK$:&PUTAT15,25,13,BLANK$
40 GOSUB80
50 &PUTAT16,29,13,FT$:&PUTAT15,25,13,DEMO$
60 GOSUB80
70 GOTO 30
80 FORI=0TO4096:NEXT:RETURN
```

---

# HEX - DEC CONVERSIONS

Below are the values 1 - 255 in decimal and hex.

| dec | hex | dec | hex | dec | hex | dec | hex | dec | hex | dec | hex |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 01 | 2 | 02 | 3 | 03 | 4 | 04 | 5 | 05 | 6 | 06 |
| 7 | 07 | 8 | 08 | 9 | 09 | 10 | 0A | 11 | 0B | 12 | 0C |
| 13 | 0D | 14 | 0E | 15 | 0F | 16 | 10 | 17 | 11 | 18 | 12 |
| 19 | 13 | 20 | 14 | 21 | 15 | 22 | 16 | 23 | 17 | 24 | 18 |
| 25 | 19 | 26 | 1A | 27 | 1B | 28 | 1C | 29 | 1D | 30 | 1E |
| 31 | 1F | 32 | 20 | 33 | 21 | 34 | 22 | 35 | 23 | 36 | 24 |
| 37 | 25 | 38 | 26 | 39 | 27 | 40 | 28 | 41 | 29 | 42 | 2A |
| 43 | 2B | 44 | 2C | 45 | 2D | 46 | 2E | 47 | 2F | 48 | 30 |
| 49 | 31 | 50 | 32 | 51 | 33 | 52 | 34 | 53 | 35 | 54 | 36 |
| 55 | 37 | 56 | 38 | 57 | 39 | 58 | 3A | 59 | 3B | 60 | 3C |
| 61 | 3D | 62 | 3E | 63 | 3F | 64 | 40 | 65 | 41 | 66 | 42 |
| 67 | 43 | 68 | 44 | 69 | 45 | 70 | 46 | 71 | 47 | 72 | 48 |
| 73 | 49 | 74 | 4A | 75 | 4B | 76 | 4C | 77 | 4D | 78 | 4E |
| 79 | 4F | 80 | 50 | 81 | 51 | 82 | 52 | 83 | 53 | 84 | 54 |
| 85 | 55 | 86 | 56 | 87 | 57 | 88 | 58 | 89 | 59 | 90 | 5A |
| 91 | 5B | 92 | 5C | 93 | 5D | 94 | 5E | 95 | 5F | 96 | 60 |
| 97 | 61 | 98 | 62 | 99 | 63 | 100 | 64 | 101 | 65 | 102 | 66 |
| 103 | 67 | 104 | 68 | 105 | 69 | 106 | 6A | 107 | 6B | 108 | 6C |
| 109 | 6D | 110 | 6E | 111 | 6F | 112 | 70 | 113 | 71 | 114 | 72 |
| 115 | 73 | 116 | 74 | 117 | 75 | 118 | 76 | 119 | 77 | 120 | 78 |
| 121 | 79 | 122 | 7A | 123 | 7B | 124 | 7C | 125 | 7D | 126 | 7E |
| 127 | 7F | 128 | 80 | 129 | 81 | 130 | 82 | 131 | 83 | 132 | 84 |
| 133 | 85 | 134 | 86 | 135 | 87 | 136 | 88 | 137 | 89 | 138 | 8A |
| 139 | 8B | 140 | 8C | 141 | 8D | 142 | 8E | 143 | 8F | 144 | 90 |
| 145 | 91 | 146 | 92 | 147 | 93 | 148 | 94 | 149 | 95 | 150 | 96 |
| 151 | 97 | 152 | 98 | 153 | 99 | 154 | 9A | 155 | 9B | 156 | 9C |
| 157 | 9D | 158 | 9E | 159 | 9F | 160 | A0 | 161 | A1 | 162 | A2 |
| 163 | A3 | 164 | A4 | 165 | A5 | 166 | A6 | 167 | A7 | 168 | A8 |
| 169 | A9 | 170 | AA | 171 | AB | 172 | AC | 173 | AD | 174 | AE |
| 175 | AF | 176 | B0 | 177 | B1 | 178 | B2 | 179 | B3 | 180 | B4 |
| 181 | B5 | 182 | B6 | 183 | B7 | 184 | B8 | 185 | B9 | 186 | BA |
| 187 | BB | 188 | BC | 189 | BD | 190 | BE | 191 | BF | 192 | C0 |
| 193 | C1 | 194 | C2 | 195 | C3 | 196 | C4 | 197 | C5 | 198 | C6 |
| 199 | C7 | 200 | C8 | 201 | C9 | 202 | CA | 203 | CB | 204 | CC |
| 205 | CD | 206 | CE | 207 | CF | 208 | D0 | 209 | D1 | 210 | D2 |
| 211 | D3 | 212 | D4 | 213 | D5 | 214 | D6 | 215 | D7 | 216 | D8 |
| 217 | D9 | 218 | DA | 219 | DB | 220 | DC | 221 | DD | 222 | DE |
| 223 | DF | 224 | E0 | 225 | E1 | 226 | E2 | 227 | E3 | 228 | E4 |
| 229 | E5 | 230 | E6 | 231 | E7 | 232 | E8 | 233 | E9 | 234 | EA |
| 235 | EB | 236 | EC | 237 | ED | 238 | EE | 239 | EF | 240 | F0 |
| 241 | F1 | 242 | F2 | 243 | F3 | 244 | F4 | 245 | F5 | 246 | F6 |
| 247 | F7 | 248 | F8 | 249 | F9 | 250 | FA | 25 | FB | 252 | FC |

# VIDEO MONITORS

A small (or large) TV, badly focussed, flickering, difficult to read, is little use to your eyes. By the end of an evening's computing, you can wind up with a headache and/or a nervous twitch from watching the antics on the screen that were not meant to be in your program! This deplorable state of affairs has a quick, simple remedy.

Premier are offering a range of monitors which will give you a steady, clear, readable picture in a range of filter colours. Output quality of these monitors is far above that of the domestic T.V. With a monitor you will find that you can put in more hours at the keyboard without feeling eye-strain. Graphics which were a vague 'splodge' on the screen become a distinct shape.

## V M 1

A twelve inch black and white monitor for the budget-conscious buyer who requires good performance at a reasonable price.

Bandwidth >7Mhz
RESOLUTION >700 lines at centre
240v 50hz 30w
75ohm input
Weight only 6.4Kg
Size 380W x 290H x 300D

Price - about £70.00 (see current price list)

## V M 2

As above with a green phosphor tube. Price - about £80.00

## V M 3

A top quality 9 inch, high resolution, metal-cased computer monitor with a black and white display plus a removable smoked display filter. Specifications include:-

Bandwidth >12Mhz
Resolution >750 Lines
Weight <6kg
240v 50hz supply
75ohm or high impedance input
Link-through video facility
Horiz & vert hold, contrast and brilliance on front panel
P4 phosphor tube
Price - about £95.00

## V M 4

As VM2, but with a green display and a P31 green phosphor tube. Price - about £102.00

## V M 5

As VM3, but with a relaxing AMBER display. Price - about £110.00

Note that all the above monitors are unable to receive normal T.V. transmissions, thus preventing other members of your family 'stealing' your VDU to watch boring repeats on BBC1/2/ITV !!

All monitors are supplied fully tested and aligned and come complete with a two metre interface cable at no extra charge. For connection to your computer, see elsewhere in this issue.

Delivery on these items (ten days) is extra at cost. All monitors are on permanent display at our showrooms.

# B O O K S

| | | |
|---|---|---|
| Beech | Software Secrets - Input,Output & Data Storage techniques | 6.50 |
| Brain Bank | BASIC Conversion Handbook for APPLE,TRS80 and PET Users | 6.50 |
| Coan | BASIC BASIC 2nd Edition | 8.95 |
| Cope | Interactive Computing Using BASIC | 5.95 |
| Finkel | Data File Programming for the APPLE | 9.50 |
| Finkel | Data File Programming in BASIC | 6.75 |
| Gilder | Basic Computer Programs in Science and Engineering | 8.55 |
| Hopton | Z80 Instant Programs 2nd Edition | 7.95 |
| Inman | More TRS80 BASIC | 6.75 |
| Lee | Computer Programs that Work | 4.95 |
| Miller | 8080/Z80 Assembly Language | 6.75 |
| Nagin | BASIC with style | 6.20 |
| Schoman | Basic Workbook | 6.50 |
| Sternberg | BASIC computer Programs for Business Vol 1 | 8.55 |
| Albrecht | BASIC for Home Computers | 5.30 |
| Banks | Living with the Micro | 4.50 |
| Atkinson | PASCAL Programming | 6.95 |
| Brown | Writing Interactive Compilers and Interpreters | 5.95 |
| Blechman | Programs for Beginners on the TRS80 | 7.00 |
| Lewis | Problem Solving Principles for BASIC Programmers: Applied Logic etc | 7.75 |
| Lott | BASIC with Business Applications | 11.80 |
| Meek | Guide to Good Programming Practice | 4.50 |
| Schneider | Advanced Programming and Problem Solving with PASCAL | 7.35 |
| Spencer | Sixty Challenging Problems with BASIC Solutions 2nd Ed | 6.65 |
| Spracklen | Z80 and 8080 Assembly Language Programming | 7.75 |
| Sternberg | BASIC Computer Programs for the Home | 8.55 |
| Trowsdale | SHARP Software Techniques: Programming the MZ80K | 6.50 |
| Albrecht | TRS80 BASIC | 5.95 |
| Blakeslee | Digital Design with Standard MSI &LSI 2nd Ed | 8.00 |
| Gewald | Software Engineering | 7.50 |
| Carver | An Intro to Business Data Processing | 6.75 |

## BASIC 5 Hints and Tips

First of all a simple one. How to draw a rectangle on screen and leave its outline, but empty the centre. An obvious way to do it is to VLIN and HLIN the four lines, but there's an easier way. Try:-

```
10 &SCR32 : &BLK5,5,30,10,161 : &BLK6,6,28,8,32
```

This routine draws a block, then draws an empty block inside it to create the space required.

The PRINT USING command in BASIC 5 is very useful for formatting text to the screen. We recently received some programs for review which use this command to format graphics as well! Simply assemble your graphics into A$, then use &PRNTUSNGX:A$ to format to the screen into your pre-defined ( &"..fff.) fields. So simple, why didn't I think of it.....

To clear up misunderstandings, here are two routines using GET which poll the keyboard:-

```
10 &GETK$
```

will give K$ the value of the key pressed everytime line 10 is called. If no key is pressed, execution continues and K$="". This routine should be used during realtime games, simulations, etc.

If you want to wait until a specific (or any) key is pressed, use

```
10 &GETK$ : IF K$=""THEN10
```

This routine will pause at line 10 until a key is pressed. If you want to 'filter out' some keys, such as RETURN, add

```
20 IF K$=CHR$(13)THEN10 : REM CHR$(13) is RETURN key
```

## BASIC 5 diagonal generation

As you will know, the command VLIN will draw a vertical line. By POKEing the BASIC5 screen step value at location 316, some interesting results can be obtained. Try:-

```
10 POKE316,63 : &VLIN0,0,16,161 : POKE316,64
```

This program will draw a diagonal line from 0,0, by altering the screen step from 64 to 63. Always POKE316 back to 64 after use. Try:-

```
10 POKE316,65 : &VLIN0,40,16,190 : POKE316,64
```

Unfortunately, altering location 316 upsets BASIC 5 when it's trying to do a VLIN anywhere other than on line zero. No doubt someone will come up with an algorithm to cope with it.....

Try this small demo program which uses the above info to interesting effect.

```
10 &SCR32
20 &CWI53260,54220,48 : &WI : POKE56960,10 : REM 56960 is for SEK users
30 POKE530,1:POKE316,63
40 FORX=0TO10:READCL,CR
50 FORN=0TO15:POKE316,63:&VLIN0,N,15-N,CL:POKE316,65
60 &VLIN0,30-N,15-N,CR:NEXT
70 POKE316,64
80 &VLIN0,15,15,189
90 NEXT:POKE530,0
100 DATA 189,190,46,46,161,161,187,187,149,149
110 DATA 176,178,235,234,170,169,223,220,213,213
120 RUN30
```

Exit the program with CTRL C. You may have to hold it down a while to exit, since POKE530,1 and 530,0 turn the CTRL C flag off and on. This has been done to stop you exiting the program while 316 has a non-64 value. Doing this then using CWI or WI (as on line 20 if you ran this program twice) would generate an FC ERROR.

---

## BASIC under attack

The BASIC language has taken quite a hammering in the magazines lately, largely from reviewers trying to 'sell' you a new language, usually PASCAL. They've told you it's clumsy, slow, restricted, and most of all (here comes their pet phrase) NOT STRUCTURED! What they seem to miss or ignore is that a lot of these 'structured' languages require a considerable amount of memory to run properly. A proper implementation of PASCAL (not Tiny) requires around 32K. Not everyone has or needs 32K of RAM - when was the last time one of your programs, whether written or theorised, cried out for that much memory?

One of BASIC's so called 'weaknesses' is that it allows sloppy programming by very inexperienced users. To my mind this is good - it gets people writing and confident very quickly. I have taken a group of ten to eleven year olds for BASIC courses, and they can usually write their own (relatively simple) programs after only a few hours tuition. They become confident frighteningly fast! What other language allows this?

But not all BASIC needs to be sloppy - 'structured' program layout is quite feasible, and even highly desirable once the user is familiar with all the BASIC command words. Once you have mastered BASIC, the golden rule is quite clear. Use GOSUB wherever possible and ruthlessly suppress GOTO. The GOTO statement, although sometimes unavoidable, is the one which lets BASIC down. It allows the programmer to flutter all over his program, wreaking havoc, altering unintentional variables, accessing undersirable parts of the program, and generally causing tremendous headaches. Whenever a customer comes to Premier and says 'John, can you have a quick look at this program for me, there's a bug in it', I know what to expect.....GOTO after GOTO after GOTO.

The good writer of BASIC should put as much of his/her program as possible into subroutines and then access them as GOSUBS. Subroutines are NOT, repeat NOT for use only in cases where you need to do something more than once, they should be used wherever possible. Your finished program should consist of a few lines of GOSUBS and IF...THENS etc, plus all the subroutines.

Once you start writing in subroutines instead of GOTOS, debugging becomes considerably easier AND your programs become structured. If the aircraft crossing the screen keeps disappearing too early, you can examine the routine which moves the aircraft instead of wading through all the program wondering 'where the hell the aircraft move bit is'! If a variable keeps changing in an unexpected manner, putting a PRINT statement at the end of every subroutine which alters that variable is much quicker than poring over your GOTO program trying to untwist last night's logic.

In the next Premier newsletter, I will expand on some of the above ideas, especially those concerning what goes into subroutines and what doesn't. There will also be a program example, written almost completely as a set of routines, which will highlight some of the above techniques and hopefully give some worthwhile guidance to those users who are familiar with the BASIC language but have yet to make full use of it.

## SARGON CHESS is here

Premier are proud to announce that we are now able to offer the SARGON II chess program for the UK101/OHIO range of computers.

SARGON II is acknowledged as one of the best chess playing programs available, giving even the expert chess player a good game. It has been written by Dan and Kathe Spracklen and came third at the North American Computer Chess Championship. First and second places went to MAINFRAME machines!!

SARGON II is able to push past pawns toward queening, play a strong end game, and range in deep play levels at end game without user direction. The computer displays the levels of play at which it is thinking and also shows the move it is currently thinking of making. It will keep changing the move shown until its final choice is made. Typical response times for a 1Mhz machine are....

| | |
|---|---|
| Level 0 | Immediate |
| 1 | 20 secs |
| 2 | 1 minute |
| 3 | 2 minutes |
| 4 | 6 minutes |
| 5 | 40 minutes |
| 6 | 4 hours |

SARGON II has seven levels of play, and levels 0-3 play in tournament time. It has a randomised opening book for all 7 levels of play through three moves.

When setting up the board, the user can scan up and down, left and right. For those players who may need help, a special hint mode is included at most levels that will suggest a good but not necessarily the best move you can make. This feature enables you to improve your standard of chess enormously.

SARGON II provides many of our customers with the product they have been demanding for a long time. When you consider the features and play capabilities of SARGON II, it's easy to see why it's the best one available and why Premier have chosen to market it!

## IMPORTANT

SARGON II requires at least 16K of memory. When ordering, state machine type and screen size. BE SURE TO ORDER THE CORRECT VERSION, especially if you have a CIU/CIE. VERSIONS ORDERED INCORRECTLY CANNOT BE EXCHANGED. Check the STOP PRESS section for details of versions currently available for the various machine/screen formats. If you want to order and wait for release, state so clearly in your letter and your cheque will be held and not cashed until your version is ready.

●● ●● ●● ●● ●● ●● ●● ●● ●● ●● ●● ●● ●● ●●

## CRIBBAGE for BASIC 4 users

The Premier BASIC 4 is a wonderful product, giving the user named files, a crash recovery and other advantages. However, it dispenses with the old screen handler at BF2D, and this stops our superb Cribbage program from running. Many customers have complained about this, including my father who's addicted to it!

After spending a lot of time trying to compact the program and stop it using the part of Page Two used by CEGMON, a suggestion from Richard Elen of the OSI User Group has provided a solution. Take the BF2D routine, trim it down to the minimum, stick it at the top of RAM and point the output routine at it. We've done it and it works beautifully. This version of Cribbage is now available, named CRIBBAGE/B4. If you already have our Cribbage program and would like the new version, send back the original cassette, plus £2.00 service charge and a stamped addressed jiffy bag.

Incidentally, having examined the coding in Cribbage, you need to be a very good player indeed to beat it - it always plays its best hand. You also need to be a competent programmer to understand the way the program works - it's a very concise piece of writing, and well worth buying just for the programming knowledge gained!

# NEW SOFTWARE

## SPACE ROVER

Space Rover is a fast action BASIC 5 game. You are the protector of an intergalactic city and have at your disposal a gun with which to kill off your attackers. On screen you have a large constantly updated radar display, plus a restricted view of part of the silhoutte and skyline of the city. What makes SPACE ROVER different is its superb BASIC5 generated graphics. As you turn your laser to fire upon the attackers, the whole city skyline moves! The effect is somewhat like looking out of the small window in the front of an army tank and makes the game extremely exciting to play.

As you can only move the gun clockwise or anti-clockwise, a situation develops very quickly where you have to decide which enemy craft to attack. Good estimation and a cool nerve are needed for this game!

## ARROWISE

A fascinating board game for two players. A playing board is generated which has squares containing arrows which can face any one of eight ways. Your job is to cross the board first, making it as difficult for your opponent as possible! Arrowise gives many hours of intruiging struggles as you attempt to send your opponent the wrong way while trying to go the correct way yourself!

## Machine Code Adventure

We have in the pipeline a machine code Adventure program that promises to be extremely good. At the time of writing, no title or details were available, please look in the Stop Press - more details will be put there if they are available.

## SPECIAL OFFER

Many of our customers are thinking of upgrading from WEMON to CEGMON, to enable them to use BASIC5, TOOLKIT, etc. Until May 31st 1982, Premier will send a £3.00 software discount voucher to purchasers of CEGMON if they enclose the 2732 chip containing WEMON with their order. The chip must be in (electrically) working order with all its legs intact (!) and MUST contain the WEMON label. As well as being beneficial to you, this deal benefits us - we have a project to announce soon needing 2732 EPROMS. (No - it's not a new monitor!).

## PREMIER EXPANDS

As we announced briefly in our last newsletter, Premier have moved to new premises which allow us a much greater working area, a showroom, a large workshop/developmental area and a secluded programming area for John! Customers are welcome to visit us any time during working hours, but if you are coming a long way for a specific product or to see Mike or John, check by telephone first to ensure availability. Buyers can usually collect on Monday evenings 7-9 p.m. by prior arrangement. Please note that we are not able to do repairs while-you-wait, unless previously agreed.

The nearest station to us is Norwood Junction (Southern Region), and this connects to many London mainline stations. Walking time from there is about 15mins (or take a 75 bus). Anerley station is also quite close, but the trains are less frequent. Buses passing the door include the 12, 75 and 157. The 12 bus runs from Oxford St directly to our door! For road travellers, Premier are on the A213 between South Norwood and Penge. Our building is large, white, set back from the main road, and comes complete with customer car park and company name-board.

A word of caution. There are TWO Croydon roads near Premier. You do NOT want the one which goes from Addiscombe to Elmers End/Beckenham. For A to Z users (a map book of London), Premier are opposite the junction of Croydon Rd SE20 and Thornsett Rd. Look up Thornsett Rd in the index, there aren't so many of them!

## Increasing BASIC workspace

Page two of the UK101/OHIO memory map is not fully utilised. It provides around 200 bytes (0240-02FF) for dumping useful machine code routines, etc. It would be useful to be able to use that area for long BASIC programs, in effect moving the start of BASIC backwards. With the line below you can do just that.

10 POKE576,0:POKE577,0:POKE578,0:POKE121,64:POKE122,2:NEW

RUN the above and you will increase your memory size in an 8K machine from 7420 to 7613

Locations 121 and 122 contain the start of BASIC workspace, and the values poked there (64 and 2) tell BASIC to start at 0240. Locations 576-8 are poked with null to enable BASIC to operate. Lastly, the NEW resets all the pointers to the new start address. Having done the above, you will now have around 200 more bytes free if you PRINT FRE(I). Loading any program from cassette will cause it to start at 0240 instead of the usual 0300. A program which previously crashed with an OM ERROR (out of memory) now has more chance of running correctly.

When using the above routine, some precautions should be observed.

1/ Don't run programs which POKE into page 2. A lot of Premier software dumps a screen clear routine there to avoid monitor incompatibility. If it is dumped over a BASIC program a lock-up is guaranteed!

2/ Don't initialise our TOOLKIT. It uses several locations high up in page two for some of its functions and will happily modify your program if given the chance!

3/ If you SAVE a long program to cassette, ensure that you execute the above routine BEFORE you load it in again. The NEW command would lose you the program straight away and even if it didn't, the way BASIC stores its program, with pointers to the next line 'address', would make it almost impossible to relocate.

## FASTER PRINTING

We mentioned in the last newsletter that to increase the transfer rate to the printer when using the RS232 interface, you could POKE the ACIA (memory location 61440). We also mentioned that sometimes it did not work, causing the machine to hang. The answer to this problem, as several customers kindly wrote/phoned and told us, is to POKE the ACIA with 3, the reset value, before poking anything else to it.

During our conversations about the above, one customer revealed a fascinating fact he had found quite by accident. He had been getting the same 'hanging' as we got, but he noted with interest that his friend's machine never hung. Close examination revealed that this machine had an ACIA made by Motorola, his own being the standard AMI version. Swopping the ACIAs proved that the Motorola version never locked, and subsequent purchase of several Motorola versions has confirmed this.

Why the Motorola version does not lock is a mystery, but no doubt someone out there has an answer for us.....

## TOOLKIT II Hints and Tips

When typing in long lines of DATA from program listings, the AUTO function comes in very handy for generating new line numbers automatically. As one of our customers pointed out, with a bit of thought you needn't bother typing the word DATA every time either.

Simply type in your program as per normal, omitting the DATA statement altogether. When the program is complete, use the REPL (global search and replace) command thus:-

REPL/0 /0 DATA

Note the space after the first '0'. This flags to REPL that it's the end of a line number it's looking for and not a '0' somewhere else. When using this 'trick' be sure to remember to

## RS 232 IN and OUT

R.S.232 is one of the EIA (Electronics Industry Association) standards for bit-serial data transmission and reception. The electrical standard is for nominal + and -12volt pulses to effect information transfer. The 12v requirement gives a problem to UK101/OHIO users as generally this voltage is not readily available from their P.S.U. However, as the R.S.232 specification for receivers is 1.5v minimum, most equipment ( printers, modems, etc) requiring an R.S.232 signal will in fact operate with the 0-5v signal which is avaialble.

The UK101 is supplied with the components needed to enable the user to derive a ' R.S.232 like' output ( R63,64,65,72 and Q1 ),but the Superboard generally is not supplied with these components and any S/B owner requiring R.S.232 out would have to fit them. They are listed at the end of this article.

With the components fitted, R.S.232 out (Tx data) is available from J3 pin 2 (signal) and pin 7 (signal ground). Output to the R.S.232 will take place during any SAVE command and will have a data transfer rate the same as the cassette interface.

The input of R.S.232 to the UK101/OHIO is a more complex problem. The incoming signal probably swings between -12v and +12v and in its raw state is not directly compatible with the 5v logic on the main board. Both the UK101 and OHIO have provision for receiving R.S.232 , providing components are fitted and some wiring changes are made. The components required are R66,R83, D16 and Q2, plus a single-pole double throw switch. The switch is fitted in place of W1 which should be cut on the keyboard side. Connect the centre pole of the switch to the Rx data line of the ACIA (J3 pin 4) and one side of the switch to J3 pin 5. This will allow loading from cassette

The other side of the switch should be connected J3 pin 6 or 10, this allowing the computer to receive data from the R.S.232 in. The choice between pins 6 and 10 is to allow for the reception of inverted data, should this be necessary - please experiment!

It is possible that when receiving data via the R.S.232 (invoked by load or POKE515,255) that the data received is garbled. This could be caused by a number of reasons such as incorrect baud rate, inverted data or incorrect data format. The 6850 (ACIA) is capable of receiving a number of different formats and can be controlled by the correct POKE to the ACIA control register (F000 hex, 61440 dec).

It is likely that when transmitting data to a printer it needs to tell the computer to stop transmitting while it performs a non-printing function such as tab and line feed. The control of the transmission of data by the receiving device is called handshaking and can be implemented as follows.

Fit R38, R39 and U67. Cut the link on W3 (located between the keyboard and U14 - the ACIA) and relink as per the diagram below. Fit a single pole double throw switch as follows. Centre pole to J3 pin 9, one contact to 0v (J3 pin 7) and the other to J2 pin 4. The incoming handshake should go to J2 pin 3. These connections will allow normal cassette SAVE to operate in one position and correct handshaking in the other.

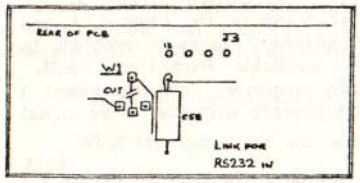
As the incoming data may need to be inverted, this can be achieved by bending out pin 8 of U67 and connecting pin 8 and 9 of U67 together under the main board.

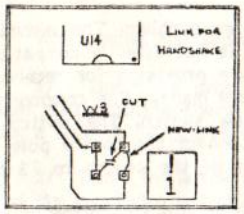
COMPONENTS mentioned in this article

| | | | |
|---|---|---|---|
| R38 | 220R | R39 | 390R |
| R63 | 10K | R64 | 10K |
| R65 | 470R | R66 | 10K |
| R72 | 1K | R83 | 4K7 |

Q1 Small signal PNP BC477 or similar
Q2 Small signal NPN BC107 or similar
U67 7414 (not LS)
D16 IN914 or IN4148

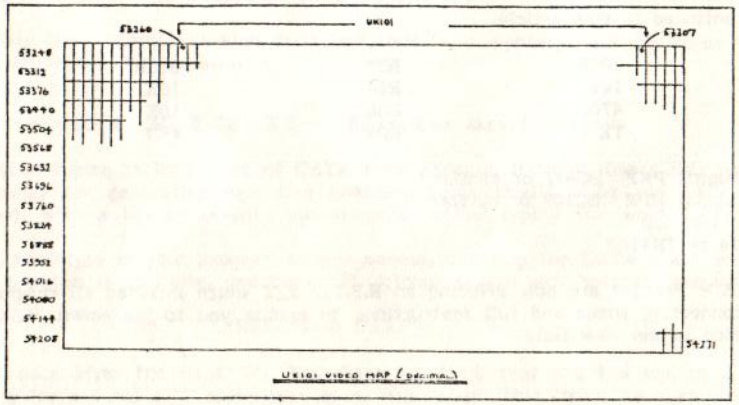
STOP PRESS - Premier are now offering an R.S.232 KIT which includes all components, switches, connecting wires and full instructions to enable you to implement R.S.232 in and out. Price as per new list.




| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | | | |
| 10 | LF | | | CR | | | | | | |
| 20 | | | | | £ | | | | | |
| 30 | | | | ! | " | # | $ | % | & | ' |
| 40 | ( | ) | * | + | , | - | . | / | 0 | 1 |
| 50 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; |
| 60 | < | = | > | ? | @ | A | B | C | D | E |
| 70 | F | G | H | I | J | K | L | M | N | O |
| 80 | P | Q | R | S | T | U | V | W | X | Y |
| 90 | Z | [ | \ | ] | ↑ | ← | | a | b | c |
| 100 | d | e | f | g | h | i | j | k | l | m |
| 110 | n | o | p | q | r | s | t | u | v | w |
| 120 | x | y | z | { | \| | } | ~ | | | |
| 130 | | | | | | | | | | |
| 140 | | | | | | | | | | |
| 150 | | | | | | | | | | |
| 160 | | | | | | | | | | |
| 170 | | | | | | | | | | |
| 180 | | | | | | | | | X | / |
| 190 | \ | | | | | | | | | |
| 200 | \ | / | / | | | | | | | |
| 210 | | | | | | | | | | |
| 220 | | | | | | | | | | |
| 230 | | | | | | | | | | |
| 240 | | | | | | | | | | |
| 250 | | | | | | | | | | |

# UK101 GRAPHICS.




## UK101/OHIO GRAPHICS

Many customers phone us asking how to POKE graphics to their screens. Superboard owners generally receive a graphics manual with their computers, which although vague in places, does at least give a grid of screen addresses and an idea of the shape of each graphic.

All the UK101 owner gets is a quick reference to the screen addresses (in hex!) and a program which purports to show all the graphics. Unfortunately, it doesn't. (If you change line 10030 in the UK101 manual from F=225 to F=255, you will see all the graphics from 226 to 255!). Amazingly, none of the program examples given in the UK101 manual POKE the screen, so a first-time user cannot even glean any information from there.

## POKING GRAPHICS to the screen

The following explanation applies mainly to the UK101 owner, and all POKE addresses are for the UK101 16x48 format. However, CIU owners should be able to carry out most of the tests as shown. CIE owners should subtract 12 from all screen addresses quoted. If you are a newcomer to the UK101, and haven't yet worked out how to POKE the screen graphics, try the following examples and don't be afraid to experiment - you cannot possibly damage your computer. At the very worst, you will only have to RESET COLD START!

First of all, look at the grid shown on the page opposite. It shows the VISIBLE part of the UK101 screen. This starts at memory location 53260 and ends at 54267. We will start by poking a thin line to the middle of the screen. Note that line 999 will appear in all the examples. This is a screen 'lock' to prevent scrolling giving a false result. To exit each example press CTRL C.

```
10 POKE 53795,128
999 GOTO999
```

In the above example, 53795 is a screen memory location (see map) and 128 is a graphics value. Any value from zero to 255 may be POKED to the screen (try some!).

The next routine will poke a block into each corner of the screen.

```
10 POKE53260,161:POKE53307,161:POKE54220,161:POKE54267,161
999 GOTO999
```

If you cannot see the right-hand graphics, subtract about 3 from the second and fourth POKE values.

Next we will POKE a block across the top of the screen.

```
10  FORN=53260 TO 53307:POKE N,161:NEXT
999 GOTO999
```

You should now have a solid white line across the top of the screen. Edit the above example, changing the value 161 to 128. This will give a thin white line. Try some other values, particluarly 32, which turns the area 'off'.

To produce graphics on the next line of the screen, the value 64 (which is the true screen width) needs to be added to 53260 and 53307, hence

```
10 FORN=53324TO53371:POKEN,187:NEXT
999 GOTO999
```

will draw a line on the next line down.

Poking the screen in this way, either with FOR..NEXT loops or with individual pokes, is the way that graphics are built up on the screen. For example, to produce a rectangle :-

```
10  FORN=53390TO53400:POKEN,128:POKEN+128,135:NEXT
20  POKE53453,143:POKE53465,136
999 GOTO999
```

To POKE a vertical line needs a different routine - a stepped FOR...NEXT loop. Try:-

```
10 FORN=53280TO54240STEP64:POKEN,139:NEXT
999 GOTO999
```

In the above example the routine contains STEP64 - this tells the FOR...NEXT loop to affix a value to every sixty-fourth memory location and thus produces a vertical line. To POKE the screen properly needs a thorough knowledge of the screen layout, so a very close look at the UK101 screen map supplied will help enormously.

Once you have mastered POKEing the graphics you will soon find that you sometimes need to know what is where on the screen. For this we use PEEK. Consider the following example:-

```
10 FORN=54220TO54267:POKEN,232:NEXT
20 FORN=53260TO54267:IFPEEK(N)=32THENPOKEN,46
30 IFPEEK(N)=232THENPOKEN,178
40 FORA=1TO300:NEXT
50 NEXT
999 GOTO999
```

Line 10 pokes a line of diamonds across the bottom of the screen.
Line 20 scans the whole screen looking (PEEK(N)) for 'empty' spaces (=32). If an empty space is found, it is replaced by graphic 46 (a full stop).
Line 30 is looking for the diamonds we poked at line ten. If it finds any, it converts them to triangles (POKEN,178).
Line 40 is simply a delay to let you see what's happening and can be left out.
Line 50 completes the FOR...NEXT loop started in line 10.

When RUN, the routine should replace all spaces by '.' and all diamonds with triangles, but should leave intact any text left on the screen.

One last trick before we finish - a diagonal stripe. See if you can work out how it works.

```
10 FORN=53260TO54220STEP65:POKEN,189:NEXT
999 GOTO999
```

Below are some useful graphics - note that the UK101 and OHIOS are different, the OHIOS having the better set! Each graphic is made up in an 8x8 matrix.

| Graphics No. | Comments |
|---|---|
| 1 and 2 | racing cars |
| 2 and 3 | open brackets |
| 4 | crown |
| 14 and 15 | houses |
| 16 to 23 | Set of rotating arrows |
| 24 | Pound sign (not OHIO) |
| 32 | blank space |
| 48 to 57 | Numbers 0 to 9 |
| 65 to 90 | letters A to Z |
| 97 to 122 | lower case a to z |
| 128 to 135 | set of rising horizontal lines - very useful |
| 136 to 143 | set of vertical lines - again useful |
| 144 to 164 | various block combinations - not well thought out |
| 161 | full block - all 8x8 matrix alight! |
| 165 to 174 | Quarter blocks in various positions |
| 175 to 178 | triangles |
| 183 to 187 | half tones - useful for contrasting graphics |
| 189 to 190 | Full height diagonals - useful for joining purposes |
| 195 to 202 | angled diagonals - can join to 128-143 set |
| 203 to 206 | set of small right angles - join to make small square |
| 207 to 210 | set of large right angles |
| 215 to 219 | useful set of thick joining lines |
| 220 to 223 | set of curves - make a small circle |
| 224 to 225 | when joined, these make a 226 - useful for animation |
| 229 to 232 | card symbols |
| 233 | reverse of 232 - open diamond |
| 236 to 239 | set of aircraft |
| 240 | little man! |
| 242 - 255 | UK101 - useless set of Greek symbols! |
| | OHIO - set of guns and tank symbols |

In addition, the OHIO has parts of spaceships and warships which join to make excellent graphics (5 to 12 and 179 to 182) - the UK101 has much less imaginative Greek characters in those slots.

By combining graphics, a form of 'high resolution' can be achieved. The main weakness of the UK101/OHIO graphics is their lack of outer edge graphics; for instance, a symbol which had a combined 128 and 135 (top and bottom horizontal lines) would be extremely useful as it would allow you to draw parallel horizontal lines using only one line instead of two.

The various UK101 and OHIO machines share the same basic screen addresses, but different use is made of the memory available. The standard 24x24 Superboard has the screen configured to 32x32, all the rest (in theory) are either 64x16 or 64x32. The problem is that each format uses a different part of the RAM for its start and end addresses, thus making the UK101 and various OHIOS all incompatible! To add to the confusion, the various screen mods available also produce different (and sometimes unpredictable) results. Below is a short list of the most common screens.

A/ UK101 Standard - screen starts at either 53260 or 53261, has a scroll width of 64, but only 48 are normally visible. Sixteen lines.

B/ Superboard Standard - screens starts at 53381, is 32 wide, with 24 normally visible. Twenty-four to thirty-two lines, depending on monitor. (Synmon gives 24, Cegmon up to 32).

C/ CIE - screen starts at 53248, but first scrolling line is 53376 (two lines down, to avoid VDU problems). Scroll width is 64, with 48 visible. Normally 28 lines.

CIU - the awkward one! Screen starts anywhere between 53248 and 53260, depending on which screen mod was done. Scrolling starts two lines down as per CIE, is 64 wide with 48 normally visible. Normally 28 lines.

In addition to the above, there are other formats available, usually from 'homebrew' mods. (Now you can see why our Screen Enhancement Kit, which can emulate nearly all the above formats, has sold so well!!)

The consequence of all these formats is that software written for one computer will appear on the wrong part of the screen for another. In the case of the 24/32 Superboards, no UK101/CIE/CIU software will run coherently at all, unless it uses simple print statements - and even that sometimes doesn't work because of the 32 scroll width.

One last inconsistency, which really throws a spanner in the works, is the keyboard. All UK101, CIU and standard Superboards have an inverted keyboard. The CIE/C2/C4 have a non-inverted keyboard. If you are a CIE/CIU owner, please carry out the test below. If you did not buy CEGMON from Premier, do NOT, repeat NOT, trust the label on your CEGMON which says CIE - so many times we have found that the machine is really a CIU wrongly labelled. This has caused us endless trouble when trying to supply the correct soft/firmware.

PRINT PEEK (57100) <RETURN>

If the answer to this question is less than 10, you have a CIE (non-inverted) machine. A value of over 245 means a CIU inverted machine - compatible with UK101. When ordering from Premier, please always state which machine you have to avoid delay or wrongly supplied goods.

STOP PRESS!! Premier will shortly be releasing a hardware addition which will give a switchable invert/non-invert keyboard response, thus curing the above incompatibility problems forever! This will be especially welcome to CIE owners as it will enable them to

## COMPETITION COMPETITION COMPETITION

This issue's competition is in an unusual form. Listed below in both BASIC loader and Hex dump is a program. The program is in 6502 machine code, completely relocatable, and should be run from the first location.

The object of the competition is to figure out WHAT the program is doing and why. It will not be easy to solve, and a good knowledge of 6502 code is essential. Those of you who are not that familiar with 6502 might still care to enter the program and run it to see the result - it's not exciting, but it does give you the ultimate answer!

If you are NOT entering the competition, but run the program, we would still like to know the result that you get - please let us know next time you write or phone.

The prize for telling us HOW the program works (and it won't be easy) is a £10.00 software discount voucher.

This devious and perplexing puzzle has been devised by Peter Rihan and Steve Purdy, who have since gone into hiding! SEK owners should set their displays to the largest screen available, although the program should 'work' on any UK101/OHIO machine with CEGMON.

```
10 RESTORE
20 FORN=590TO590+59:READS:POKEN,S:NEXT
30 POKE11,78:POKE12,2:X=USR(X)
40 DATA 169 , 0 , 171 , 83 , 75 , 255 , 75 , 255 , 75 , 255
50 DATA 75 , 255 , 92 , 141 , 0 , 73 , 48 , 72 , 226 , 169
60 DATA 138 , 84 , 86 , 41 , 15 , 60 , 205 , 0 , 73 , 48
70 DATA 170 , 104 , 252 , 189 , 174 , 141 , 232 , 209 , 212 , 105
80 DATA 142 , 233 , 209 , 68 , 165 , 32 , 64 , 254 , 76 , 126
90 DATA 249 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0 , 0
```

```
A9 00 AB 53 4B FF 4B FF 4B FF 4B FF 5C 8D 00 49
30 48 E2 A9 8A 54 56 29 0F 3C CD 00 49 30 AA 68
FC BD AE 8D E8 D1 D4 69 8E E9 D1 44 A5 20 40 FE
4C 7E F9 00 00 00 00 00 00 00 00 00 00 00 00 00
```

CLOSING DATE for entries is 15/4/82. All entries MUST be on a separate sheet of paper, with your name, address,etc - don't mix them with an order, or they'll be filed away!

---

## COMPUTER FAIR COMPUTER FAIR COMPUTER FAIR

PREMIER PUBLICATIONS will be at the Computer Fair, sponsored by Practical Computing/Your Computer, on April 23-25 at Earls Court. We will be on stand 536, exhibiting as much of our range as space permits. Our disk system and SEK will certainly be there, plus some of our programmers, and we also hope to have special offers. If you need cassettes (C15 and C25), we'll be selling them in tens for £3.95/£4.50.

We hope to see as many of you there as possible. Please come and say hello if you find our stand - it's right in the middle!

COMPUTER FAIR
EARLS COURT
APRIL 23 24 25
STAND 536

## Apologies and Thanks!

1/ Apologies to the first fifty customers who received their long-awaited SEK kits. Unfortunately, due to the speed with which the instructions were assembled, several errors crept in. One day we'll publish the whole saga of the SEK - it'll read like a script from Dallas!

2/ Apologies to the customers who read my article on fitting a REPEAT key to get single-key BASIC entry with CEGMON and then phoned and said it didn't work! What I forgot to mention is that you need new BASIC 1 to unmask the keyboard. Alternatively, you could use the routine on page 16 of the CEGMON manual.

3/ Apologies to the customers who ordered from us just before Xmas and didn't get their goods in time. Unfortunately the size of the 'last-minute rush' completely overwhelmed us and despite working from 9a.m. till midnight, some customers were still disappointed.

4/ Thanks to all the customers who supported us during 1981, especially those who waited so patiently for their S.E.K kits. Many orders included 'Merry Xmas' to us - may we take this opportunity of wishing you all a happy and prosperous 1982.

5/ Thanks to our various suppliers, especially our new I.C. supplier, who has improved our delivery times drastically. We have now weeded out all our unreliable suppliers and fully expect that during 1982 our delivery times and stock purchase times will get even better.

## K.S.R PRINTERS

Up to now, we have always insisted on the buyer collecting these printers due to their size. However, one of our customers persuaded us to allow ROADLINE to collect and deliver the printer for him, and since this seemed to go smoothly, we are prepared to extend this facility to everyone under the following conditions.

1/ You make all the arrangements with ROADLINE for collection, having paid for the printer beforehand.

2/ You accept the fact that we will NOT give you your money back if you pass out when you see the size of it (or for any other reason) !

3/ You accept the responsibiltiy for damage during transit. ( Damage is unlikely, they're built like a battleship and we have known one survive a drop onto a concrete floor - only the floor showed any signs of stress!)

All the printers will be supplied fully tested, with an interface cable ready made up. All you have to do is to solder two wires to your UK101/OHIO. At the time of writing (early Feb) the KSR printers are available ex-stock. Delivery time for the ASR/MSR printers is around ten days. Please note that we are running out of stands and cannot now guarantee supplying one with every printer. Full details of these printers appeared in our last newsletter (Nov 81).

## CEGMON windows

As we have stated many times, one of the great strengths of CEGMON is its flexible screen formatting capabilities. It can be set up to 'see' the screen anywhere in memory. Locations 546 to 550 (decimal) contain the values needed by CEGMON to find its screen. Since they are in RAM, the user can easily change them to his/her own requirements. If you have an S.E.K. but not BASIC 5, knowledge of how to use these locations becomes vital, so let's examine them in detail.

546 contains the value for the screen width, minus one. If you want your screen to be 64 wide for the 32x64 format, POKE546,63, the screen width minus one. The editor will obey the value held in 546, whether it be one or 63.

547 and 548 contain the address of the top left-hand corner of the screen. The UK101 starts (visibly) at 53260, which is D00C (hex). To place D00C in 547 & 548, it is neccessary to split D00C into D0 0C, reverse the values and convert them to decimal, so that 0C (12 decimal) is poked into 547, and D0 (208 decimal) is poked into 548. If you are unsure about converting hex-decimal, consult our conversion table elsewhere in this issue.

549 and 550 contain the address of the bottom left hand corner of the screen, and the same rules about reversing the values applies.

If you have the normal screen display (48x16 or 24x24), your screen starts at D000 and ends at D3FF. The 2K screens continue to D7FF. To change a screen format you need to know the HEX address values of the start of your new screen and the bottom left corner. The width is easier and can be thought out in decimal!

If by now you are confused, here is an example which changes the CEGMON screen to be four lines high and twenty wide.

```
10  POKE546,19 : REM  twenty wide

20 POKE547,20 : POKE548,209 : REM new top left

30 POKE549,20 : POKE550,210: REM new bottom left

40 PRINT CHR$(30) : REM clears new window and homes cursor within it.

50 LIST : REM lists program in new area and ends program.
```

If you have BASIC 5, the above can be achieved with:-

```
10 &CWI53280,53536,19:?CHR$(30):LIST
```

To return to your usual screen, RESET WARM START.

A note to BASIC 5 owners. You have the commands CWI and CWI$ which allow you to manipulate the screen in either hex or decimal very easily. Note that WI initialises BASIC 5 to the new screen format, it does NOT change the screen format - use CWI to do that. Also, if you get FC ERROR when using CWI or CWI$, it is because you have not placed the top and bottom left values directly in line vertically.

## MOVE YOUR REGULATOR !!

The UK101 comes complete with its regulator designated to fit on the main board. As you will know, it gets very, very hot, and eventually starts burning the board! If you have not already done so, we would strongly advise you to remove the regulator from its inadequate heatsink and place it on a much larger heatsink away from the main board. If you have an early UK101 which was supplied with a two prong heatsink, this advice is particularly applicable.

## PREMIER NEWSLETTER

This newsletter is sent free to REGULAR Premier customers. If you have an 'L' in the bottom left-hand corner of your address label, this will be the last newsletter you receive until you buy something! As we have explained before, this newsletter takes an enormous amount of time to write, print, collate and send out - so our Company Computer will now quite mercilessly cut you off!

Customers who buy on a regular basis need have no fears - they will continue to receive newsletters.

This newsletter was written and edited by John Hooker, Mike Bedford (RS 232) Peter Rihan and Steve Purdy (FORTH) also kindly supplied articles. It was generated using Word4Word and Word Wizard, printed on a CENTRONICS 737 printer, then photo-reduced by 50%.

The next newsletter will be around May '82.



## UK101 / OHIO REPAIR SERVICE

Due to our vastly extended workshop space at our new premises, we are now able to offer a repair service to any customer whether they have bought from us in the past or not. Please note the following conditions

1/ You must phone or write BEFORE you send in the computer to get a 'Customer Repair Number'. This number must be quoted on all correspondence and the box when your machine arrives at Premier.

2/ A cheque for £25.00 must accompany the machine - this covers repair and return postage. If the bill looks like coming to more than £25.00, we will contact you. In practice, most customers receive a rebate cheque with their returned machine.

3/ We will not attempt to repair any machine which has had a screen mod done (unless it is our SEK), unless the fault is in no way connected with the video circuitry ie! there MUST be some kind of picture. We are sorry to have to make this ruling, but several very long repairs have forced us to this decision.

4/ The computer should be clearly labelled with your name. Please remove the right-hand RESET/BREAK key and also the space bar, which are easily damaged in transit. If you keep these keys at home, please state so in your letter!

5/ The computer should be accompanied by an accurate description of what happens to cause malfunction - if you have to leave it on for eight hours before it crashes we need to know! Where feasible, please send in the P.S.U. with the computer - these are often the culprit.

6/ It should be understood that the risk in posting BOTH WAYS is yours. Premier will send the computer back to you well packed, but we will not be responsible for loss or damage during transit. Always insure your computer when posting - it only costs a few pence.

Our turn-round rate on repairs is about 2-3 weeks, but this can vary with the elusiveness of, and the accuracy of the description of, the fault.

## REPAIRING IT YOURSELF

The majority of the computers we repair have simple faults. If your computer goes wrong, please check the following before contacting us:-

1/ The fuse! Has it blown? Is it loose in its clips. Take it out, clean it, bend in the clips and replace. If you have a voltmeter, check the voltage on the keyboard side of the fuse. It must be at least 4.90 volts for reliable operation. Also check the voltage on the top side of the fuse - if it's less than 4.95 volts, suspect the Power Supply - is it up to the job?

2/ Are any of the integrated circuits loose in their sockets? The UK101 in particular is prone to the I.C.'s rising up in their sockets. Push them all firmly down, especially the row directly above the keyboard which is very close to where you push on the keys and flex the board.

3/ Are any of the I.C.'s running very hot? The 2114 chips should be very warm, but most of the rest should run reasonably cool. If the fault occurs after several hours' use, it may be an I.C. overheating. To prove this, warm some of them up with a hairdryer to see if you can produce the fault quickly.

4/ Is your cassette interface (UK101) unreliable/very volume sensitive? Try replacing IC63 with a non-LS version. Experience has shown that this will either cure the fault altogether or make matters much worse!

5/ If you suspect the RAM in your machine, try swopping the two right-hand 2114's with the video RAM (don't touch the I.C. pins - static conscious). If you then get spurious characters on-screen, the RAM is faulty.

6/ Are you running at 2mhz? Do you have 'slow' RAM ? The older UK101/OHIO machines were supplied with 550ns or slower RAM which will NOT run reliably at that speed. Try reverting to 1mhz. Remember that 2716 EPROMS are not guaranteed to operate at 2mhz.

7/ If you have a freezer spray, it would be worth 'freezing' the I.C.'s in turn to reproduce/clear the fault.

8/ If you have expanded your machine, have you installed the 8T28 chips? If you have, try swopping them with the video drivers which are also 8T28 chips. From experience, we have found 8T28 chips to be far from reliable.

9/ If you are installing a kit, (SEK, Mini Eprom Board,etc), check that you have followed all the instructions. Try to get someone else to check what you have done - a new mind often sees the 'obvious' mistake very quickly.

## S P A R E S

Premier are now able to offer spares for the UK101/OHIO range . Spares include any of the TTL, RAM or microprocessor chips, plus keys and keytops ( but not the P.C.B.). Prices are so up and down that we do not propose to publish a price list - please ring for a quote if you need spares.

## SCREEN ENHANCEMENT KIT

This kit, which has generated great interest, is now available ex-stock. As explained in previous newsletters, it gives 20 software selectable screen sizes ranging from a full 32x64 to 24x24. It can emulate the UK101, UK101E, CIU, CIE, C2, C4, Superboard II and III formats, all by one POKE to one location.

On the UK101, the kit is fully plug-in and no mods are needed to the board except bending out one pin on one I.C. The JI expansion socket is not used.

The OHIO machines need some work doing on the main board to make the kit function. This is caused mainly by the fact that many I.C.'s are not socketed. Once these mods have been done, the kit then becomes plug-in. If you have previously had a screen mod done, you will need to revert to the original display before installing an SEK.

NOTE that CEGMON is essential when using the S.E.K. - no other monitor will handle varying screen sizes (see below).

## CEGMON X

CEGMON X is available to customers who have purchased our S.E.K. at £5.00 for the upgrade (+90p p&p). It powers up to the 32x64 format automatically, and the editor has also been adjusted to cope with this format. It does not have the adjustable scroll rate that we had hoped for - there simply wasn't room in the chip to do it. CEGMON X is therefore more a convenience than a neccessity if you already have a 64 scrolling CEGMON. One attraction for machine-coders is that CEGMON X tabulates machine code across the entire screen (16 locations instead of 8), thus allowing double the amount to be in view.

When ordering CEGMON X, you must enclose your original CEGMON, plus details of where you bought it if it wasn't from us. We regret that the terms of our licence do not permit us to sell CEGMON X to customers who have not bought our SEK.

## VIDEO OUTPUT

You may be attracted by the Video Monitors we have on offer this month and if so may be wondering where to find the video output on your board. It's located on the output socket at the top left-corner of the computer. The far left pin (looking from the keyboard) is the 'live', the pin next to it the earth. If you will be using this output permanently, it would be an idea to cut the two wires going to the modulator as this device will not be needed.

## High Speed Cassette Interface

Due to supply problems, we regret that we are no longer supplying this product.

## WORD WIZARD II

In the last issue, we promised to include some information on moving and enhancing Word Wizard II. We have now found that later versions of WWII differ internally from earlier versions, leading to certain 'enhancements' not working

In view of the above, Premier are looking at WWII with a view to relocating it at the lowest possible location in memory, thus allowing the user to use any memory above the program for text. Purchasers of WW will be contacted in the near future with further details.

## DISK SOFTWARE

Premier can now offer the majority of its 5.25 disk software to 8" users, as we have recently purchased 8 inch double sided double density disk drives.

## OS65D V3.3

We have recently acquired OS65-D version 3.3. It contains many enhancements, and a lot of the bugs in earlier versions have been eradicated. The supplied version consists of SIX diskettes, plus outstanding (for OSI) documentation. We have already linked it to CEGMON and made it work with the assembler as well as in BASIC!

Premier hope to be able to sell V3.3 in the near future (plus the full range of OSI disk software) - purchasers of our disk system and any other customers who we know have a disk system will be contacted as soon as we are in a position to supply.

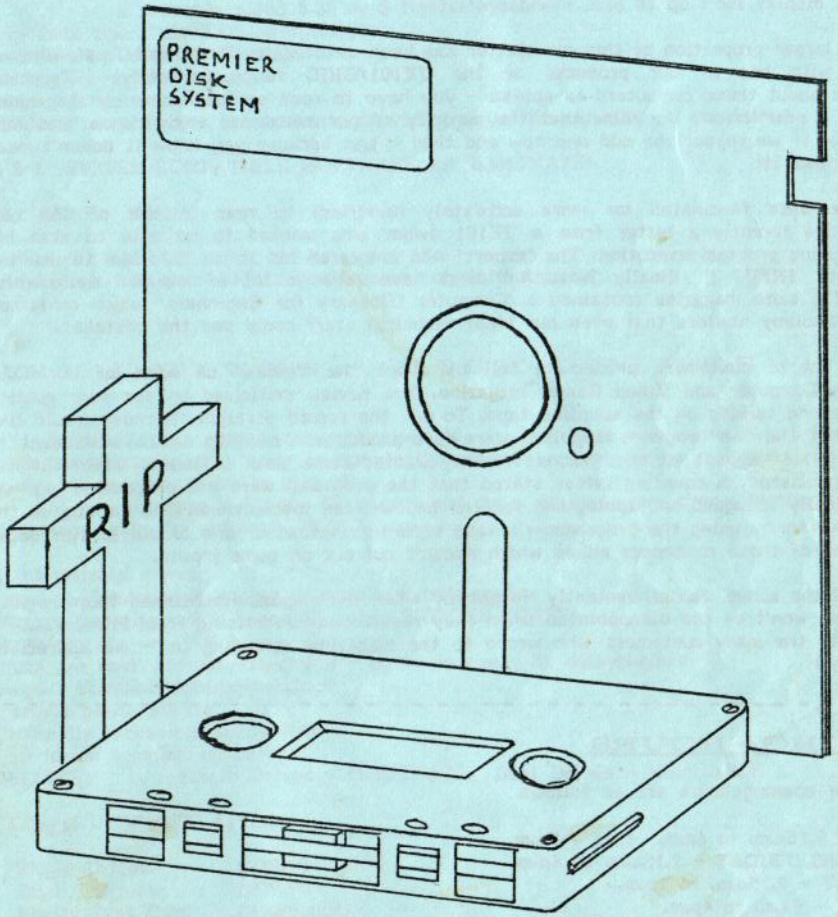
## B O O K S

In addition to the books listed in this newsletter, Premier will soon be in a position to supply books on the 6502, and full service manuals for the OHIO range computers. Look in STOP PRESS for further details.

PREMIER PUBLICATIONS

# M A R C H  1 9 8 2

# N E W S L E T T E R

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