J. Hancock

The Dispatch Disk.
Southern Districts Commodore Users Club Inc.

August 87.

COMMITTEE - 1986/87.

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Librarian : John Hancock - see secretary above.
             Library open 7:00 pm - 7:30 pm each general
             meeting.

Newsletter : Rob Price   66 Bolton Court   Flagstaff Hill
             phone 270 5694

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Next meeting : MONDAY 28th September at 7:30 pm. KIDS NIGHT!!!

Location   : Salvation Army Hall, Elizabeth Rd. Morphett Vale.
Subject   : Paperback Writer/Games.

              October:
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Disclaimer   : The views expressed in this newsletter are
those of the writer/writers, and are not neccessarily of the
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64-128k PBUF - PRINT BUFFER REVIEW

There is a serious problem with printers. In this age of fast processing and communications the speed of printing is woeful. A typical dot matrix printer printing in draft quality will take about one minute to print a page and a great deal longer to print in near letter quality. If the printing is done in graphics it is time to make a cup of coffee, or perhaps retire for the night. Some wordprocessors, such as Wordstar allow the user to print one file while editing another, but this slows the operation of the wordprocessor and is not on most wordprocessors. The solution is a print buffer.

A print buffer, which is sometimes called a spooler, is simply memory which can be used to store a file on it's way to the printer. This allows the computer to be used for other things while the file is being printed. This memory may be part of the computers memory, memory in the printer or a separate device connected to the printer and computer. The december 86 version of CP/M for the Commodore 128 includes an inbuilt print spooler. These inbuilt spoolers take various forms. They may have no effect on the users normal operations other than to allow the user to use the computer before the computer has sent all the data to the printer. This is how the spooler operates on CP/M on the Commodore 128. On other computers a programme has to be run each time a file is to be spooled. All printers have a certain amount of memory for storing output from the computer. Many only have several hundred bytes, enough for several lines, some up to several thousand bytes, enough for one or two pages. The subject of this review is a separate device connected between the computer and the printer.

There are a number of print buffers available varying in price from about $300 for the smaller and most basic devices up to over $600. These buffers usually have Centronics input and outputs so that they will not work with Commodore printers. Some buffers may also accept RS-232C input and output.

The PBUF is one of several devices designed by Don McKenzie for use with printers. Amongst other devices that he has designed are a printer switch and an RS-232C/Centronics interface.

The PBUFF has a Centronics input to Centronics output. A conversion is also available to give the buffer an RS-232C input and/or output. The buffer has a COPY switch which will print multiple copies of a document. There is a reset switch to clear the buffer and a test button that prints a sign on message to the printer. A HEX dump mode is also available. In this mode the buffer will convert all data going to the printer into hex so that the printer codes can be seen. This is most useful in debugging printing programmes. Finally the printer has a pause switch. When on the buffer will not send any data to the printer until the pause switch is turned off. This pause can be caused by the software pause which will occur when the printer receives two back slashes.

How much memory is installed depends upon your requirements and budget. As a rule one page of text takes about 3k of memory. The smallest memory for the buffer is 8k which is about three pages. The memory can be expanded in 8k steps up to 64k. This provides about 20 pages of text. By replacing the eight memory integrated circuits and changing one link the memory can be expanded to 256k. This is about 80 pages of text. If a lot of graphics printing is anticipated then it should be remembered that a full page of graphics will occupy the best part of 64k. On the other hand many programmes take more time generating the data for the printer than it takes for the printer to print it. As a guide a set of 64k memory ICs costs about $16 whereas the 128k ICs will cost about $64.

A number of forms of the PBUFF are available. Short form kits are available for $42. This includes the printed circuit board and EPROM. I built the 64k version with a lot of parts from my junk box for $100. Fully built 256k versions are available from JR Computers for $351.60. Including a splitter for two printers or two computers the cost is $446 and including a serial board for all possible combinations of RS-232C and Centronics $370. With both serial and splitter board it costs $572.

Short form kits are available from the designer by mail order;
Don McKenzie
29 Ellesmere Cresc.,
Tullamarine 3043
Australia
Phone: (03) 338 6286

The kits and completed units are also available in South Australia from;
JR COMPUTERS
262 Grange Road
Flinders Park
Phone: (08) 234 0994

J.H.

SELLING YOUR OLD COMPUTER BY AUCTION

Like many C-64 enthusiasts, my first adventures in computing were with
a Vic-20. Actually by the time I bought my Vic-20, the C-64 was on
the market but it was quite expensive and I wasn't certain that I
could ever gain enough knowledge to work a computer. My first attempt
at connecting it up nearly proved disastrous because I didn't tune the
TV into the right channel!

As my knowledge of computing grew, so did my collection of accessories
- a 3K expansion cartridge then a 16K cartridge, a variety of game
cartridges, games on tape, even HES Writer (a word processing
cartridge). I learnt a lot out of HES Writer but most importantly
that a word processor is not a lot of use without a printer! I
devoured books voraciously. I even sent off to the U.S. and got
copies of "Compute!'s" First, Second, Third and Fourth Book of VIC
and haunted Standard Books and Adelaide computer shops. To
accommodate all the cartridges, I bought a motherboard and learnt a
new meaning for the term "mother". When I finally launched out and
bought a disc drive, I was in seventh heaven - the 1541 actually
transferred data to and from the Vic-20 faster than it does to the
C-64!

But all my friends had C-64's. Their machines seemed capable of much
grander things, had magnificent graphics, exceptional sound and when
it came to storage so much more memory capacity. So, reluctantly (at
that stage), I went out and purchased a C-64 and put my treasured VIC
and its accessories away in a cupboard.

Some two and a half years later, I am a confirmed C-64 enthusiast (I
have two of them and two disk drives plus innumerable disks and rarely
does a day go by that I don't put the C-64 to use.

For some time, I have felt guilty about my Vic-20 hidden away in the
cupboard. Perhaps I should sell it, I thought. Who would buy it? I
would feel guilty selling it to some young kid because I know there is
a better product. But still it represented money not being utilised
which could be used for my C-64 updates (or to pay off my Bankcard!).
That was my dilemma!

But then someone came along at work who had been to a computer
auction. He said that they sold all types of computers. I didn't
really believe anyone would buy a Vic-20 at auction, but when I
contacted the auctioneer, he said that I could expect to get up to $75
for the Vic-20 and they would parcel up the software and books to
auctionable lots. So I duly delivered what amounted to be a very
large box containing the Vic-20 and its accessories to the auction
rooms. The auctioneer invited me to come along. I deferred thinking
to save myself from the ambarassment when there were no bidders.

Two weeks before the auction and much to my surpriise, I saw an advert
for the auction in The Advertiser - and it featured my Vic-20 (albeit
on the bottom line). However this was enough to get me along to the
Saturday morning of the auction. To cut a long story short I had to
wait until they auctioned 170 lots before they got to mine. Would you
believe someone paid $16 for 6 non-working Spectrums. When it came to
my items, people actually bid for them competitively!

The Vic-20 brought $100; the C2N Data cassette $30 (maybe using it
makes it more valuable!; a thermal printer/lister (for which I could
no longer purchase the paper) $100, and so on. When I got the
documentation back from the auctioneers, it all totalled $430 which
less the Auctioneer's commission of $65, provided me with a net figure
of $365. And, it was all so painless! And, with no guilty
conscience! I didn't talk anyone into buying - they actually wanted
it!

So if you have an old computer gathering dust in the cupboard, gather
it up and give Kearns Auctions of Prospect (tel. 269.5688) a ring for
their next auction date.

JEFF CAREY

COMMITTEE TOPICS.

News from the Committee meeting held this month .
1. The Club Committee has decided to offer a donation of
$100-00 to the Salvation Army for the kind use of their Hall
which to date has been free of charge.

2. The Club's AGM is to be held in October and Members are
advised that all Committee positions fall vacant at that
meeting with nominations being called for a new committee.
Please ensure that you keep this date free.(ie. last Monday
of the month).

3. The meeting set down for Monday 28th September is to be a
kids night. So please tell the kids and bring along your
favourite game. If you can bring your computer along too it
would be most appreciated. More details this meeting.

4. It is proposed that the December meeting will include a
Golf Tournament, so all you budding Greg Normans out their
had best get plenty of practice.

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For those of you who may wish to work out your Housing or
other loan repayments try the following program.

```
5 REM**LOAN PAYMENT CALCULATOR**
6 REM**BY ROB PRICE            **
10 PRINT"":POKE646,7:POKE53280,9:POKE53281,9
20 PRINT:M=0
30 INPUT"TERM IN MONTHS";M
50 PRINT:P=0
60 INPUT"AMOUNT $ ";P
65 PRINT:I=0
70 INPUT"EFFECTIVE INTEREST RATE % ";I
80 I1=(1+I/1200)↑(1)-1
90 R=I1+I1/((I1+1)↑M-1)
95 P1=INT(P*100+.5)
100 P2=(P1*R+.5)/100
120 PRINT:P3=INT(P2*100+.5)/100
130 PRINT"$";P3
135 PRINT
140 PRINT"ANOTHER Y/N ?"
150 GETA$:IFA$=""THEN150
160 IFA$="Y"THEN10
170 IFA$<>"N"THEN150
180 END
```

Don McKENZIE
29 Ellesmere Cres.,
Tullamarine 3043
Australia
Phone (03) 338 6286

These kits have a single/multiple copy facility, Hexadecimal output mode, software pause (double backslash), optional hardware pause, DATA/STATUS LED, connector for SERIAL board expansion, and extensive ROM diagnostic routines to aid kit builders.
Just want to have a look at the assembly, debugging, and operating instructions? Send me $2.00 for the "PBUFF MANUAL". You can deduct this from the total cost if the kit is purchased later on.
This buffer installs in-line to your printer using standard centronics male, female connectors. I have designed it so that it can be powered up with an existing +5 volt supply, or an external input voltage of 9 volts AC or DC. Any plug-pack capable of supplying 400mA or more will suit this project. If a SERIAL board is to be fitted, then a 9 volt @ 1 amp A/C supply must be used. (Transformer :- Dick Smith Electronics Catalogue M-2155 or equiv.)
Ver 2.2 can be configured for 8, 16, 32, or 64K simply by adding extra 4164 (64K) RAM chips. One chip for 8K, 2 for 16K, 4 for 32K, and 8 for 64K.
Ver 3.2 uses eight by 41256 (256K) RAM chips.
The board and instructions are the same for both Versions, only the EPROM is different.

I am selling this unit in what I call a "PBUFF SHORT FORM KIT".
This consists of:-
One bare single sided printed circuit board.
One EPROM programmed with PBUFF Ver 2.2, or Ver 3.2
Full assembly instructions, includes circuit, chip pinouts, and hardware debugging section.
You provide all other parts and labour. You must have in your tool kit a multi-meter, and if you do run into real trouble, a Logic Probe may be required.

Check my ORDER FORM for the current price of the PBUFF SHORT FORM KIT.
For a small additional fee, both versions of PBUFF can be programmed into an EPROM and selected with a one link option.

****** SORRY, THE SOURCE CODE LISTING IS NOT AVAILABLE FOR PBUFF ******

How much are you really up for? You have to provide a suitable case, power-pack, (or transformer) centronics male and female connectors, approx. $20-$30 worth of additional components, plus your memory chips. If you are a hardware hacker like me, you already have most of the components.

The printed circuit board has been designed to mount straight into the DICK SMITH Instrument case, CAT H-2505
PBUFF accepts up to 65536 (Ver 2.2) or 262,144 (Ver 3.2) characters from a centronics printer port, and stores it until your printer has completed it's task. This releases your computer for other work. Bear in mind that any commercial 64K printer buffer will cost you from $339 to $777, and a 256K buffer will cost you from $500 to $1200 (if you can get one.)
To save on case, power supply, and connector costs, you may find it convenient to install PBUFF inside your computer as many users have done. PBUFF is running on all types of computers from the early TRS-80's, to the latest IBM PC's and compatibles. We have yet to find a true CENTRONICS port that it doesn't run off. The other side of this sheet of paper should have an overlay view of the printed circuit board.

Buy Australian

Ideal for use w' '
System 80, TRS 80, Sorcerer

Apple Macintosh

microbee

PBUFF REV. E BOARD · 1986(C) 1-MAY-86 by Don McKenzie
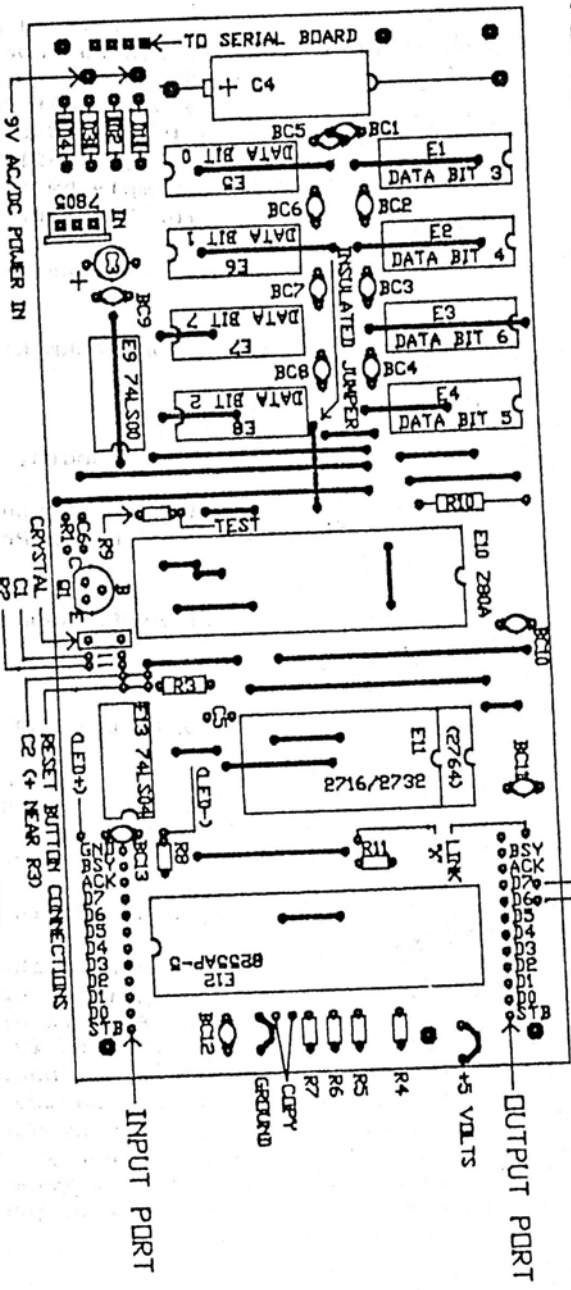
PBUFF V2.2 9-64K

PBUFF V3.2 256K

TO SERIAL BOARD

9V AC/DC POWER IN

C4

BC5   BC1
E1
DATA BIT 0   DATA BIT 3
E5

BC6   BC2
E2
DATA BIT 1   DATA BIT 4
E6

BC7   BC3
E3
DATA BIT 7   DATA BIT 6
E7

INSULATED JUMPER

BC9

BC8   BC4
E8   E4
DATA BIT 2   DATA BIT 5

E9 74LS00

7805
IN

R3

TEST

R10

E10 Z80A

BC10

CRYSTAL
C1
R2

E13 74LS04

R9
R1

2716/2732
E11

(2764)

BC11

(LED+)

(LED-)

R11

LINK X

E12 8255AP-5
BC13

RESET BUTTON CONNECTIONS
C2 (+ NEAR R3)

CRYSTAL 3.58MHZ (3.579S)
C1   BC548
D1-D4   IN4002 (4)
7805   +5V REGULATOR (TO-220 CASE)

BSY
ACK
D7
D6
D5
D4
D3
D2
D1
D0
STB

HARDWARE PAUSE

+5 VOLTS

OUTPUT PORT

GND
BSY
ACK
D7
D6
D5
D4
D3
D2
D1
D0
STB

INPUT PORT

BC12

COPY
GROUND

R4
R5
R6
R7

BC1-BC13   .01uf Ceramic   C13
C2   220pf Ceramic
C3   22uf Tantalum   16V
C4   10uf Tantalum   16V
C5   2500uf Electrolytic 16V
C6   150pf Ceramic
           680pf Ceramic

R1   100K
R2   270 OHMS
R3   10K
R4-R7   4K7 (4)
R8   1500 OHMS
R9   4K7
R10   1K
R11   4K7

```
=======================================================================
 ORDER  FORM  "PBUFF"  PRINTER  BUFFER  KITS  AND  COMPONENTS.
=======================================================================
PLEASE PRINT IN BLOCK LETTERS.      | SEND CHEQUE OR MONEY ORDER TO:-
FROM:-                              |              Don McKENZIE
                                    |         29 Ellesmere Cres.,
name..............................  |              Tullamarine
                                    |           Victoria  3043
company...........................  |              AUSTRALIA
                                    |         Phone 03 338 6286
address...........................  |_____
                                    | OFFICE USE ONLY Date Rec.......
suburb/town/city..................  | Date Disp.......Addition OK....
                                    | All clear (tick or 'X' only) ....
state........... postcode.........  | If bulk order, stock OK    ....
                                    | If other problem mark X    ....
phone................ 'date.......  |
                                    |              INIT......
country (if not AUS)..............  |_____

Please, briefly, where did you hear about PBUFF?.....................
------------------------------------------------------------------
                     RETAIL PRICES OCTOBER 86

PBUFF Ver 2.2  (8K to 64K)    Short form kit    $ 39.00
PBUFF Ver 3.2  (256K)         Short form kit    $ 39.00
Ver 3.2/2.2 both in one EPROM Short form kit    $ 42.00
Parallel I/O board                              $  4.00
SERIAL SHORT FORM KIT                           $ 18.00
PRINTER SHARER BOARD (P2C1)                     $ 12.00
COMPUTER SHARER (C2P1)                          $ 12.00

LIST OF ADDITIONAL COMPONENTS ON THE NEXT PAGE   -------------------->>

PLEASE SUPPLY...
|          DESCRIPTION            |QUANTITY|UNIT PRICE|SUB TOTAL
|--------------------------------|--------|----------|---------
|................................|........|$.........|$.........
|................................|........|$.........|$.........
|................................|........|$.........|$.........
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|................................|........|$.........|$.........
|................................|........|$.........|$.........
|................................|........|$.........|$.........
|................................|........|$.........|$.........
          POSTAGE AND HANDLING (ALL ORDERS)  $    3.00

PAYMENT METHOD.......... BANK (IF CHEQUE)........   TOTAL   $.......
```

OVERSEAS ORDERS.... All prices are in Australian dollars, and all orders are
returned Air Mail. Go to your local bank, get a BANK cheque payable to Don
McKENZIE in Australian Dollars for this amount. CUSTOM DUTY becomes your
problem. All items are marked "PRINTED MATTER ONLY AND COMPUTER PART(S)".

BULK ORDERS.... (Not applicable to ram chips and pins.) 10-49 10% off,
50-99 15% off, 100 plus 20% off.(NOT AVAILABLE TO CREDIT CUSTOMERS.)

Dear PBUFF customer, I have put together a list of additional components
that may be of interest to you. I can't as yet buy in the quantities that
the larger Electronics stores can, so my prices are what I call "ONLY
COMPETITIVE". IE:- Some of my prices may be half the normal advertised price
on some items, and perhaps double on others. Kit builders living in remote
areas, or those of you who would rather me chase up parts than you hunting
around, may find this service suitable for your needs.
I can only supply the items listed, but hope to be able to add to this list
at a later date when further items can be sourced at the right price.

DON'S "ONLY COMPETITIVE" PRICES:-

3.58 MHZ Crystal (PBUFF)	$	3.00
Z80A (Zilog Z8400APS)	$	5.50
8255 AP-5 PPI	$	6.00
74LS00	$	.70
74LS04	$	.70
PBUFF FRONT PANEL SWITCHES:- 2 x SPDT, 2 x PUSH BUTTON	$	4.40
PBUFF IC SOCKET SET:- 2 x 14 PIN, 8 x 16, 1 x 28, 2 x 40	$	6.10
4164 64K dynamic rams. (8 required for 64K) EACH	$	3.00
41256 256K dynamic rams (full 8 must be used) EACH	$	8.00

4.9152 MHZ Crystal (SERIAL)	$	5.00
IM6402IJL UART	$	14.00
SERIAL IC SOCKET SET:- 4 x 14, 2 x 16, 1 x 40	$	3.00

MISC. components........

7805 +5volt regulator in TO-220 case.		$	1.10
Unprotected headers MALE	STRIP OF 12	$	1.40
Unprotected headers FEMALE	STRIP OF 12	$	1.40
24 pin I.C. socket.	EACH	$	.55

IBM PC type printer cable 25-DB TO 36 way centronics $ 25.00
PLUS $3.00 P&P for above cable.

SPECIALS THAT HAVE NOTHING TO DO WITH PBUFF AND DON NEEDS TO FLOG OFF:-

TANDY COLOR COMPUTER EXTENDED BASIC ROM (ORIGINAL) SUIT ALL VERSIONS EXCEPT
THE LATEST SMALL WHITE CASE. ONE ONLY $50.00

HARDWARE LOWER CASE KITS WITH 3 LINE DESCENDERS FOR TANDY COLOR COMPUTER.
SUITABLE FOR GREY CASE VERSIONS ONLY. NO SOLDERING, JUST PLUGS IN.
TWO ONLY, ASSEMBLED AND TESTED. $40.00 EACH.

TANDY COLOR COMPUTER 64K, LAST GREY CASE VERSION WITH NEW KEYBOARD (FROM
FIRST WHITE CASE VERSION), EXTENDED COLOR BASIC, HARDWARE LOWER CASE, EDITOR
ASSEMBLER FOR 6809 IN ROM PACK, 2 JOYSTICKS, MANUALS. ONLY DRIVEN BY LITTLE
OLD LADY TO CHURCH ON SUNDAYS. (OH YEH !!!!) $300