

UPDATED February 3, 1988
8K-64K (Version 2.2) AND 256K (Version 3.2)
CENTRONICS PARALLEL TO PARALLEL PRINTER BUFFER KITS.

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Up to now, my advertising has included two full pages of reviews and testimonials from user groups and individuals from Australia, New Zealand, and U.S.A. As sales approach 1500 Printer Buffer Kits, (which includes sales to the U.K., Spain, the Philippines, Canada, and Sweden), I feel that no further testimonials are needed, as this speaks for itself. I do thank the above people for their past efforts in producing these testimonials.

These kits have a single/multiple copy facility, Hexadecimal output mode, OPTIONAL software pause (double backslash), OPTIONAL hardware pause, DATA/STATUS LED, power 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 signals. 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 H-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 EPROM supplied has both Version 3.2 and Version 2.2 burnt into it. Without board modifications, V3.2 is selected, with one track cut and one jumper wire, V2.2 is selected.

Previous PBUFF builders found that the software pause function (double backslash) proved to be more trouble than it was worth in most cases. During a bit graphics dump, if a double back slash was detected, the printer would hang up thinking that it was told to pause, wait for you to release the pause using the copy switch, then continue on it's merry way, except that the two backslash characters had been eaten up by PBUFF which usually upset the graphics dump. To overcome this, two EPROM'S are available. The recommended one without the pause is CAT ID. PC and one with the pause for those who really need it, CAT ID. PD

I am selling this unit in what I call a "PBUFF SHORT FORM KIT". This consists of:-
One bare double sided plated through printed circuit board.
One EPROM programmed with PBUFF Ver 3.2, and Ver 2.2
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.

***** 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 connectors and cables, 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.)

PBUFF is running on all types of computers from the early TRS-80's and Apples to the latest IBM PC/XT/AT/386 and compatible clones, Macintosh Plus, Microbees, VZ200/300, Tandy Color (using Serial board addition). In fact 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.

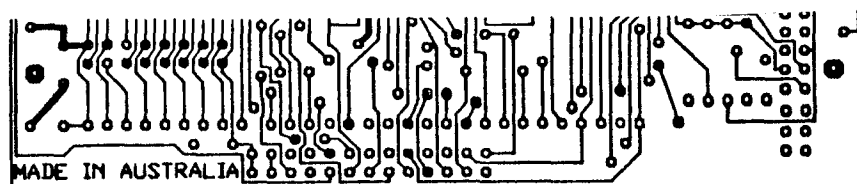
Connector J1 on the REV G PBUFF board is an extension of the Z80A chip pinout and will be used for future hardware expansion. When expansion boards become available, a 40 pin dual row male header can be soldered into this position.
J2 carries the standard PBUFF bus system used to connect to all other input/output boards. A double row 26 pin male unprotected header can be soldered into this position. Two by 26 pin crimp IDC headers connected to each end of an eight inch length of 26 wire flat ribbon cable is used for board interconnections. All other input and output boards have been designed to "MATE UP" with the J2 connector.

The circuit of this new board is virtually the same as earlier boards with the following exceptions:- Provision is made for a full 8K EPROM, and 8K static RAM (6264). A 555 timer chip has been added to the circuit. This timer will be used for interrupt driven Dynamic RAM refresh.

The static RAM and the 555 timer are not used for the current Ver 3.2 or 2.2 software. In fact, V3.2/2.2 will not run with the 555 timer installed. I hope to develop some interesting software and hardware in the coming months that will make use of the 8K ROM, 8K RAM and Z80 bus extension.

To save on costs, the J2 connector can be wired up to connectors mounted on the rear of your case as per the wiring circuit in my BP10 ad., however I recommend using my BP10 board for neatness, ease of expansion, and trouble free assembly. The crimped wiring will last longer than any solder job.

A standard IBM printer cable can be used for the extra cable needed for the BP10 board. Please check my catalogue for a list of additional components and cables.





microbee

APPLE
IBM COMPATIBLE
Toshiba T1100

AMSTRAD

Goodwell

Ideal for use with Sorcerer
System 80, TRS 80,

Apple Macintosh

& other computers

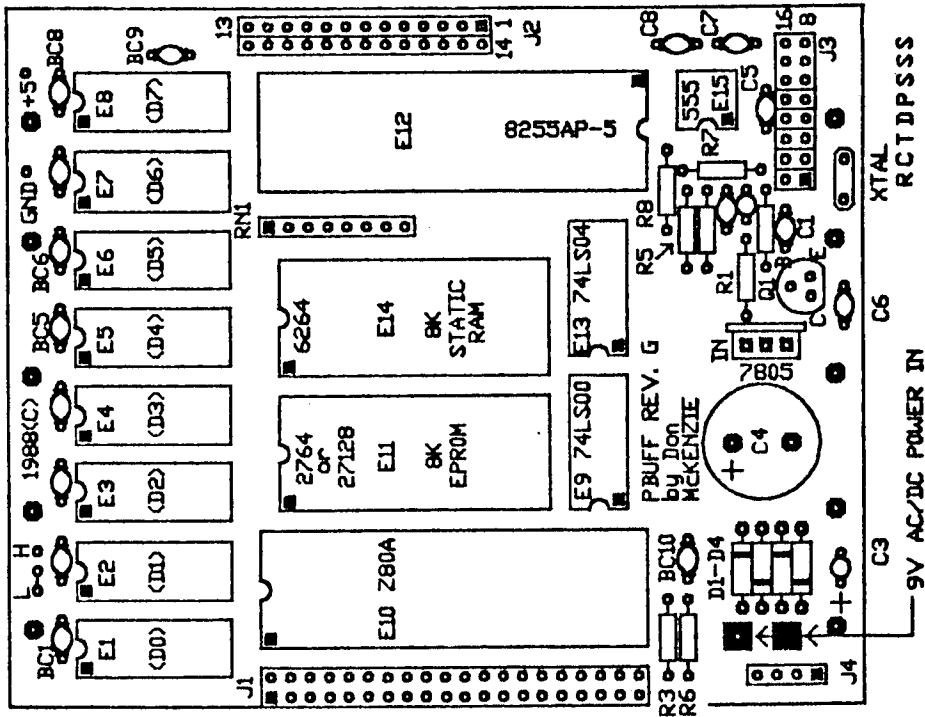
BC1-BC11 .01uf Ceramic (11)
C1 220pf Ceramic
C2 22uf Tantalum (16V)
C3 10uf Tantalum (16V)
C4 2200uf Electro (16V)
C5 150pf Ceramic
C6 680pf Ceramic
C7 .01uf Ceramic
C8
R1 100K
R2 270 OHMS
R3 10K
R4 150 OHMS
R5 1K
R6 4K7
R7 100K
R8 1K

CRYSTAL 3.58MHZ (3.579545)
Q1 BC548
DI-D4 IN4002 (4)
7805 +5V REG (TO-220)

DYNAMIC RAMS
4164's or 41256's

RN1 Resistor network
Single in line package with
7 by 4K7 resistors with one
common pin. (8 pin device)
NOTE MIN PIN 1 NEAR DRAMS

BOARD LAYOUT
BETWEEN R5 & C1
R5
R4
BC11
C2 (+ END NEAR R1)
R2
C1



All chips and connectors have
pin 1 marked with a square. ■

Connector pinouts.

J1 Z80 BUS

STANDARD PINOUT OF
Z80 FOR FUTURE EXPANSION

J2 INPUT	J2 OUTPUT
14 STROBE	1 STROBE
15 D0	2 D0
16 D1	3 D1
17 D2	4 D2
18 D3	5 D3
19 D4	6 D4
20 D5	7 D5
21 D6	8 D6
22 D7	9 D7
23 ACK	10 ACK
24 BUSY	11 BUSY
25 GROUND	12 GROUND
26 +5 VOLTS	13 +5 VOLTS

J3 CONTROL

1 9 RESET
2 10 COPY
3 11 TEST
4 DATA LED +
5 DATA LED -
6 13 HARDWARE PAUSE
7 8, 14, 15, 16 SPARE

J4 SERIAL BOARD POWER OUT

1 AC
2 +12VOLTS
3 +5VOLTS
4 SPARE

