

Don's MARKET PLACE

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

Interested in fitting my 48K mod?

It has been pointed out to me by several people living in remote areas, or areas where chips are not available at reasonable prices, that they would like me to purchase on their behalf, a set of 64K memory chips, suitable for this project.

I will provide a 48K complete kit, but only if I have a current stock of 64K chips. As these are hard to obtain, and the prices vary greatly, I have adopted a daily quote type system.

48K Complete kit :- Price \$ *7.5-* (Now includes my 60/64K circuit)

Includes postage, one 7805 +5 Volt regulator in a TO-220 case, one 74LS156 decoder chip, and a 0.1 uf capacitor, which should be mounted across the common and the output legs of the regulator, and fitting instructions.

Complete kit minus Fitting instructions :- Deduct \$5 from the Complete kit price.

Date available ... *13/2/84* Speed *150415*

2716 EPROMS.....

I have a large quantity of tested 2716 type EPROMS.

These are comprised of 2816's, 2516's, and 2716's, and have various brand names. They are all pin for pin compatible with standard +5 volt 2716's. Each EPROM has been programmed and erased. To me, these chips are a better buy than a new chip, as failures are common with new chips. I spend a lot of time trying to get replacement chips for dead EPROMS. In some cases, retail outlets are not prepared to replace any failed semi-conductor that has left the shop.

I am selling these chips at \$3.40 each, which is less than any retail outlet.

On top of that, I pay the postage anywhere in Australia.

Now for the catch.....

Minimum order TEN. Not much of a catch, is it. It means that you must spend \$34 for TEN known working 2716 type EPROM'S.

Personal shoppers may purchase single quantities at \$3.40.

2716 EPROMS NOW \$3

~~Erasing for special bulk purchase orders.~~

MINIMUM ORDER \$30

ANOTHER CRAZY OFFER.....

ERASING OF EPROMS.

I don't know if anybody would want this service, but here it is.

If you have an eprom you wish to erase, you must mark it on the underside of the chip with paint, liquid paper, etc. so that you can identify it when it is returned to you. You post it to me, I pop it in my eraser and post it back to you. I accept no responsibility for failed chips. I am prepared to offer this service at 20 cents per chip, including postage. *40c*

Of course, there is another catch. Minimum charge ~~\$5.~~ *\$4-*
That covers your first TEN EPROMS.

Make me an offer.....

I have a two chip set of original TANDY level one, yes level one ROMs for a TRS-80 MODEL ONE. These ROMs are labeled as follows :- BASIC 1 ROM A, and BASIC 1 ROM B. They are MOTOROLA chips. I am putting a figure of \$25 on them. No doubt somebody could make use of these chips. If you can use them, make me an offer.

I don't expect to sell any of these.....

Original character generators for SYS-80's, and TRS-80's. Might suit service technicians etc. \$5.

SYSTEM-80 AND TRS-80 MODEL ONE USERS

Fit 48K of memory into your keyboard for under \$70 using new technology 64k 200 ns dynamic RAM chips. Send \$5 for installation instructions for either system, or \$8 for both. Included for non-technical persons, is a list of my authorized modifiers in MED, SYD. & ADL, who will fit your 48k for an all inclusive cost of \$105. Send foolscap size stamped S.A.E. for info. on my other goodies, which include a 3 line descender lower case character generator for \$12.90.

Don MCKENZIE
29 Ellesmere Cres.,
Tullamarine, Vic. 3043.
Phone (03) 338-6286 A.H.



I WAS A 16K WEAKLING
BEFORE I TOOK
DR MCKENZIE'S
MODS !!

Now includes 60/64K
circuit.

I fitted my 48K in the keyboard of my TRS-80 in under 2 hours whilst taking notes for installation purposes at the same time. I had an L.N.W. board with 32K of memory on board and 16K in the keyboard. The only reason I worked out this one was to overcome the problems encountered with the mystery re-boots and noise problems inherent to the Model 1 type computer. These computers are notorious for re-booting or freezing up at the worst possible moment.

This modification has finally made the Model 1 type computer, a reliable machine. It is also a bonus for 4K or 16K users, as these can be expanded much more cheaply than the plug in kits that use a total of at least 25 chips. My mod has eight memory chips that plug into the existing RAM sockets, and one decoding chip that must be piggy-backed onto the main CPU board. Approx. twelve track cuts and twelve jumpers need to be done.

My existing L.N.W. board needed the data buffers disabled to overcome the problem of dual memory at the same address.

Faster memory chips are available for the "hotrod" types like myself. For approx. an extra \$10 you can have the 150 ns memory chips. This article was written at 3.54MHz using a Z80A and my new super reliable 48K machine. I Don't know about you lot out there, but the last \$70 I spent was the best computer dollars spent this year.

FOR SALE:- 24 by 200 ns 4116 memory chips (tested)
\$12.90 per set of eight

An extract of a letter sent to me on the 10-MAR-83, from EWART STRONACH of 119 Alt Street, Ashfield, N.S.W. 2131.

Dear Don,

Thank you for the 48K conversion data and the seemingly endless list of additional "goodies". I purchased a set of chips locally and rushed over to a friends place for the "great up-grade". My hardware experience prior to this had been very minor so I left the hard bits to him. I shouldn't have bothered...It's a PIECE OF CAKE !!!! Your directions were as clear as a bell and the little diagrams cleared up any uncertainties we might have had. The mod worked at first power up and my only problem now is to find something big enough to fill 48k.

ADDITIONAL MODIFIERS NOW IN BRISBANE, PERTH, AND MANY COUNTRY CENTRES.

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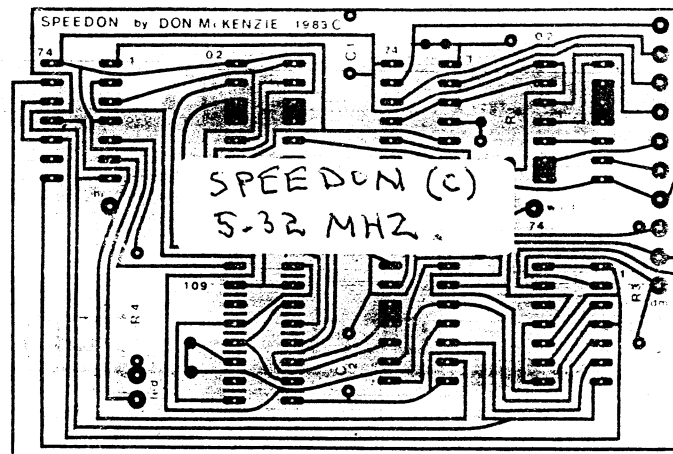
IF YOU LIKED MY 48K MOD., PLEASE PLACE THIS AD. UP ON A NOTICE BOARD
SOMEWHERE EG:- DICK SMITH STORES, SCHOOLS, COMPUTER USER GROUPS, ETC.

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1-JAN-83

SPEEDON pronounced "SPEED ON"..... THREE TIMES NORMAL SPEED ON YOUR SYSTEM-80 OR TRS-80 MODEL ONE.

21-OCT-83



DON McKENZIE
29 ELLESMERE CRES.
TULLAMARINE 3043

SPEEDON is a small single sided printed circuit board, that has seven common TTL chips on board, and is capable of running your computer at 5.32 MHZ. One wire link is required for this board, 17 jumpers are needed to wire SPEEDON to your computer, and 2 track cuts need to be done to your main CPU board.

Some words of caution :- This mod is suitable only for persons with hardware experience. I only sell the bare P.C. board and fitting instructions. I will not guarantee that your computer will run at 5.32 MHZ, or even 3.54 MHZ. (double speed), however many computers are now using my SPEEDON at 5.32 MHZ. To run at 5.32 MHZ, you must install a Z80B CPU chip. All Z80's are pin for pin compatible. My 48K-60/64K circuit using 200 n/s chips, will run a 5.32 MHZ. You may have trouble with RAM in expansion interfaces, dirty edge connectors, loose cable etc. which could effect the ability of your computer to run at treble speed. HOLMES ENGINEERING USA. have a 5.3 MHZ board known as the "SPRINTER". They have tried all sorts of tricks to break the 5.3 barrier. One trick they do, is to substitute all the 74LS367 chips for 74367 chips. I hope you get the idea. My board will output 5.32 MHZ using wait states, but I will not guarantee that your computer will accept the speed up. An extra wire must connect between the expansion interface (or disk controller) and your computer.

If you have read this far, then you are still interested, so here is the good news. SPEEDON uses port 254, data bit zero to control the speed. This matches up with the LDOS SYSTEM (FAST) command. Data bit one is also decoded on the board for user expansion. An optional hardware switch is also covered, as some games programs may flip your speed. The low speed is 1.77 MHZ (standard speed), and the high speed can be hardwired to 2.66, 3.54, or 5.32 MHZ, using wait states. When wait states are used, the CPU runs at full speed internally, but all memory cycles are slowed down. This may represent an overall reduction in speed of approx. 20% The "SPRINTER" also slows down by approx. 20% when it uses wait states.

SPEEDON slows down automatically for disk operations. This can also be hardware selected to 1.77, 2.66, or 3.54 MHZ. It has provision for a tri-colour LED, that will let you know what speed you are running at. RED for low speed, and GREEN for high speed. Every time your disk motor starts up, your computer slows down to the selected disk I/O speed, and the LED changes to RED for all disk I/O operations.

Cost of the SPEEDON bare printed circuit board, wiring instructions, and postage is \$17.90

Cost of additional parts should be approx. \$5 including the LED, and I would hope that my Authorized Modifiers would be able to fit SPEEDON all inclusive for around \$50. This price of course, doesn't cover the Z80B, optional hardware switch, or any additional work done in an attempt to run at 5.32 MHZ.

SPECIAL... All resistors, capacitors, and LED for this project \$2.50, if ordered at the same time.

HOW MUCH DOES IT COST FOR A CALCULATOR THAT CONVERTS DECIMAL TO HEX, AND VICE VERSA?

If you do a lot of machine language programming like me, you will go out and buy a Texas Instruments Programmer for around \$75. This top line calculator also computes octal, 1's complement, 2's complement, right or left shifts, etc. etc. If you hunt around, you may find a Japanese calculator for \$30, that has Hex conversion only, plus the normal calculator functions.

Now, how about a converter program resident in ROM, from power up, for your Model I, or System-80 type computer for \$12.90

I have just completed my Hex converter ROM assembled at 3900H. To make use of this ROM, you must have a DONMON VER 2.3, and a Mark II board.* Not only does it convert Hex to Decimal and vice versa, it also gives the Peek value for any input. You remember the explanation of those crazy Peek values in the Level II manual, well you can forget all that, as this program will compute these values for you.

In the past when I have come up with a new product, I have stuck "DON" into the name somewhere. One guy said to me "Jeeze Don, you must have an ego like Dick Smith, you plaster your name everywhere." So, short of calling this product HEXDON, I decided to give it my development file name. If ordering, please quote:- HEXCON39

With HEXCON39 plugged into your Mark II board, and basic comms set up, (this is explained in the DONMON manual) press "J" in DONMON command mode, and a jump to the following menu will take place:-

```
Hex Converter for DONMON VER 2.3   Oct 1983 (C) Donmod.
Basic Comms must be intact.   Assembled at 3900H
Input:  Decimal  Hex  Warm  Xit (D/H/W/X?)
Dec ? -267
Dec -267 = FEF5 Hex           Peek at  -267
Input:  Decimal  Hex  Warm  Xit (D/H/W/X?)
Dec ? 32768
Dec 32768 = 8000 Hex           Peek at  -32768
Input:  Decimal  Hex  Warm  Xit (D/H/W/X?)
Hex ? FEF5
Hex FEF5 = 65269 Dec           Peek at  -267
Input:  Decimal  Hex  Warm  Xit (D/H/W/X?)
Hex ? C000
Hex C000 = 49152 Dec           Peek at  -16384
Input:  Decimal  Hex  Warm  Xit (D/H/W/X?)
```

* MARK II Board refers to Donmon MARK II Board.

The above is a screen print, using four input examples. As you can see, negative decimal numbers are valid. Leading zeros must be used for Hex input EG:- 00FF The Break key will bring you back to the input menu, "X" will return to the DONMON menu, and "H" will jump to Basic READY with your Basic program intact. This program works with Level II, and disk Basic. Input error detection has been kept to a minimum to conserve program length. Any error will return you to Basic, and display an error message, but your Basic program will still be intact. HEXCON39 simply plugs into the 3900H hole in your Mark II board.

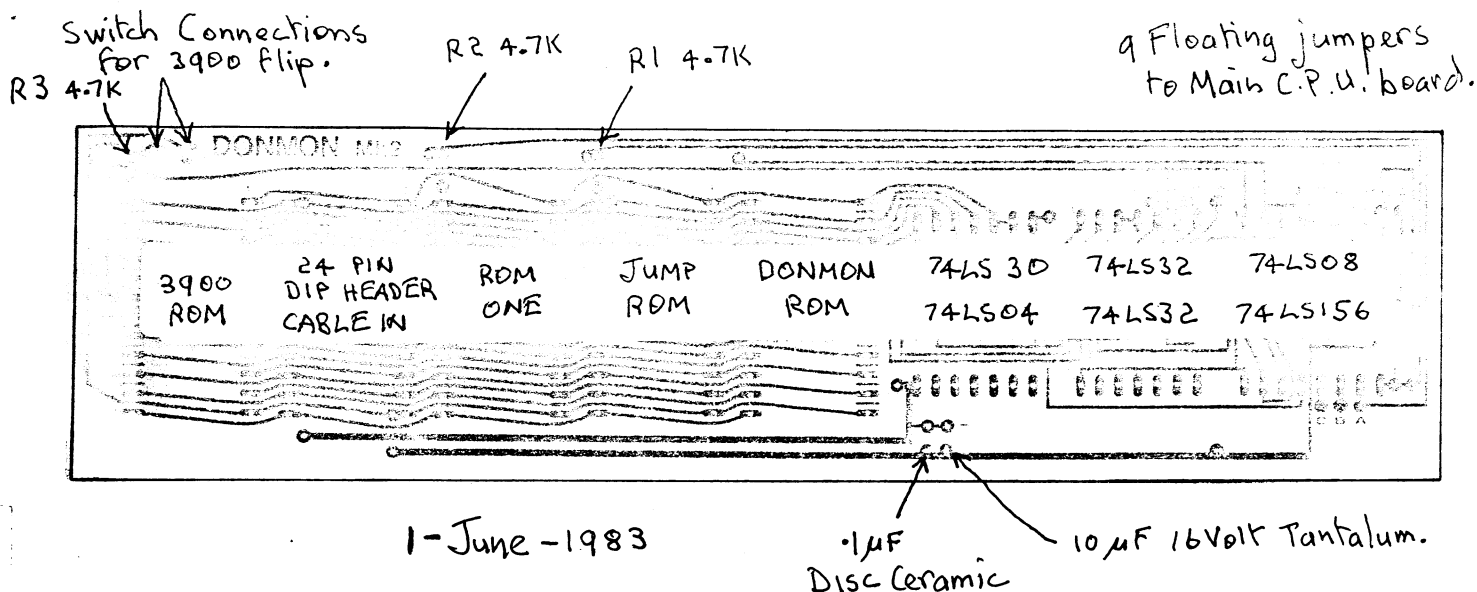
This sheet of paper is the ad., the manual, and the fitting instructions. It's that simple. MIX N MATCH..... HEXCON39 uses only 300H bytes, so you can have another program in the phantom 300H bytes.

I will burn any two of my standard 3900H programs into one ROM for only \$12.90
Hey!! That's only \$6.45 a program.

DON MCKENZIE
29 ELLESMERE CRES.
TULLAMARINE 3043

OCT-9-1983

ATTENTION TRS-80 MODEL ONE AND SYSTEM-80 COMPUTER OWNERS.



NOW AVAILABLE..... THE DONNON MARK 2 PRINTED CIRCUIT BOARD INCORPORATING MY 3900 TO 3BFF HEX DECODE.

The Mark II board has provision for six TTL chips, three resistors, two bypass capacitors, and five ROM sockets. A 24 conductor flat ribbon cable 14" long with a 24 pin DIP header connected to each end, is used to jumper the ROM BUS from your main CPU board to the DONNON board. These header pluss cost around \$3 each. To install the DONNON mark 2 board, ROM 1 is removed from your computer, and plugged into it's new socket on the DONNON board. The header cable is then plugged into your old ROM 1 socket. Nine additional jumpers need to be run from your main CPU board to the DONNON board, and two track cuts are required on your main CPU board.

TRS-80 3 chip set :- The header cable pluss into Z33 on the CPU board, not the ROM 1 position on the satellite board.

Debounce chip :- My circuit for reset button debounce has been simplified. A 74LS74 is piggy-backed onto a chip near the Z80 CPU. One track cut, and three short jumpers are required. SYSTEM-80 type computers should not need this debounce circuit.

The Mark 2 board was designed to make the installation of DONNON a lot easier, with the added attraction of an extra 300H bytes at 3900H. (or 2 groups of 300H bytes, giving 600H bytes in all)

Making installation easier did not reduce installation costs, as more components are required.

The mark 2 board is a single sided printed circuit board. 8 wire straps must be installed on the component side of the board.

The mark II board is available seperately for hardware hackers who wish to install their own eroms. This board is suitable for TRS-80 Model One, and SYSTEM-80 type computers.

The memory map for the three EPROMS supported is as follows :-

0000 to 07FF hex (2716 EPROM) 800H bytes.
3000 to 37FF hex (2716 EPROM) 700H bytes.
3900 to 3BFF hex (2716 EPROM) 300H bytes. (switchable to 600H.)

The board has provision to switch the 3900 ROM from low to high select. This allows two programs at 3900 hex. Each program can be 300 hex bytes long.

The bare DONNON Mark II printed circuit board, with installation instructions is \$17.

The DONNON Mark II short form kit, with installation instructions is \$45. This price includes the JUMP ROM, DONNON ROM, Mark II board, and DONNON manual. The cost of other parts from normal retail outlets could be anywhere between \$10 and \$20.

As the cost of additional parts could vary greatly from state to state, I am not asking my authorized modifiers to fit this one at a set fee. You must negotiate with these people, if you require their services. I would suggest a figure of around \$85 to \$95 all inclusive.

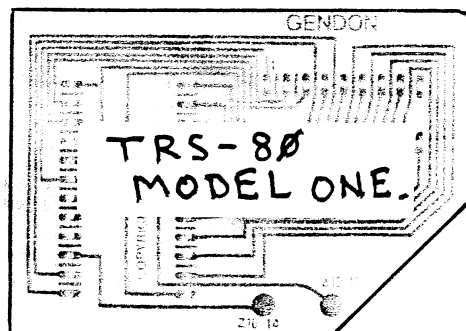
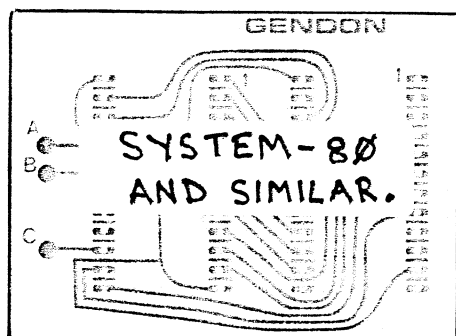
Will it fit your garage ??

TRS-80 owners may be wondering how this board with all this gear fits into the keyboard. The board measures 1 and 7/8" by 7 and 1/16", and fits neatly on the bottom of the keyboard case, component side up, parallel to the back of the case, with the 3900 ROM position underneath the reset button. The header cable runs neatly from the CPU board to the DONNON board with two right angle folds.

DON McKENZIE
29 ELLESMERE CRES.
TULLAMARINE 3043

NEW FOR 1983
Printed Circuit boards for GENDON3's.
1-MAY-83

DON MCKENZIE
29 ELLESMERE CRES.
TULLAMARINE 3043



Take the hard work out of fitting your GENDON3. I now have professionally built printed circuit boards to install GENDON3's into TRS-80 and SYSTEM-80 type computers. Prices include postage, and are the same for both units.

GENDON3 . . . 3 Line descender lower case character generator. \$12.90

Printed circuit board only. \$6.00

GENDON3 and printed circuit board. \$18.90

Complete kit of parts. \$24.90 Includes two strips of P.C. board pins, 2102 memory chip, and a 24 pin socket for GENDON3.

Assembled and tested \$29.90

If the assembled and tested unit is purchased, you still must piggy-back the 2102 memory chip, and carry out a small amount of track cutting and jumpering.

WARNING !!!!!!!!!!! If you have an A.S.P. or HOLMES 48K internal expansion board, my GENDON3 P.C. board will not fit, as these boards overlap my P.C. board, however this problem can be overcome by soldering an I.C. socket onto my board, and running a flat ribbon dip header cable between the two boards.

Have you fitted, or about to fit my 48K mod? (Now includes my 60/64K circuit)

I have spent a lot of time and money developing my 48K mod. If you are happy with it, I am sure that you will tell your fellow computer users. This may become a problem to me as hardware circuitry can be simpler to copy than software. In my case it is only a few photocopied pages of information.

Most of my profits are eaten up in phone calls, postage, and advertising. Those of you that have received interstate calls from me will know that this is the case. I am always prepared to back up any item that I sell. I can only continue the work that I am doing by making a profit.

Now I ask you two questions. Is it fair that my circuits be passed onto others free of charge? Do I charge too much?

If your answer is no then I have a proposition that will benefit both of us. You have paid me \$5 for the 48K instructions. Sell the instructions for \$5 and send me \$2.50 royalty. Of course this is only a gentlemen's agreement and one that I can't police. It's in your hands.

I would expect that my authorized modifiers adopt the same procedure, with every 48K installed. Is that asking too much?

If you managed to fumble your way through the 48K mod., then you might consider installing a GENDON3.

My GENDON3 is no harder to fit using my P.C. board than the 48K mod.