

AUSTRALIA'S NUMBER ONE ELECTRONICS MAGAZINE

ELECTRONICS

AUSTRALIA

VIDEO, HIFI & COMPUTERS

OCTOBER, 1982

AUST \$2.00 * NZ \$2.50

Registered by Australia Post — publication No. NBP0240.

DIGITAL READOUT FOR SHORTWAVE RECEIVERS



- ADD SPEECH TO YOUR COMPUTER
- SHURE V-15 TYPE V REVIEWED

DICK SMITH "WIZZARD"
VIDEO GAME
REVIEW

New product from Dick Smith

Wizzard Video Game

+

Personal Computer



Many people cannot make up their minds whether to buy a personal computer or a video game console. The Wizzard from Dick Smith is a third possibility. It is primarily a video game console but has the capability to be upgraded to a personal computer with the addition of a Basic interpreter cartridge.

If you or other members of your family are video games fanatics you will naturally be interested in this latest release from Dick Smith Electronics. It is called the Wizzard and the improbable spelling is not a printing error. The Wizzard can be had with a range of games cartridges (each at extra cost) which have a high degree of animation and make good use of graphics and colour capability.

As well, each game has music and sound effects.

The Wizzard console is largely finished in matte black plastic with fake woodgrain end-panels. Dimensions are 355mm x 60mm x 230mm (W x H x D). There are two joystick controllers and these are attached to the console via a coiled cord which can extend about 60cm. A button on each side of the joystick controller provides a "fire" controller while a 24-way pressure sensitive keyboard (like the Sinclair ZX81) is also a feature. In the normal games mode, a coloured plastic cover is slid over these keyboards and only two of the "buttons" are used. In the computer mode each joystick controller is clipped into the console to form a 48-way keyboard in a more or less conventional "QWERTY" format.

In the games mode, the joystick controllers are quite effective although their capability of moving an object in any of

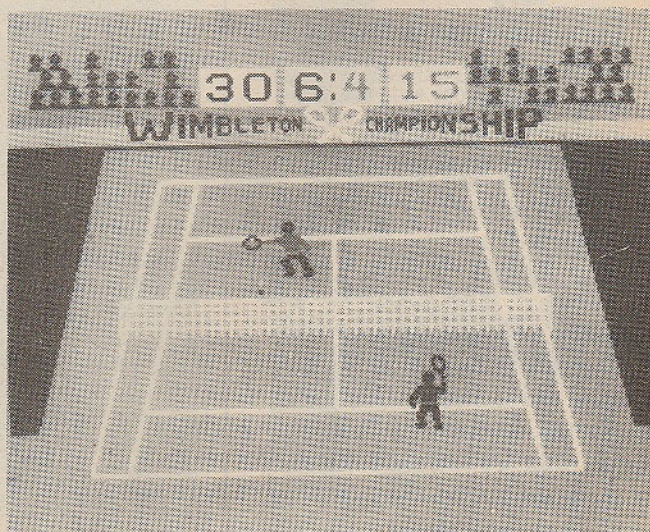
16 directions does not appear to have been fully utilised in any of the games we tried. The joystick controller actually only has eight contacts in its membrane but the software interpolates between these (when two contacts are closed) to give 16-direction capability. The "fire" buttons are also effective but strangely, they are not mentioned or described in the instructions. This means that unless you happen to discover their operation by accident, you are likely to use the adjacent contact keyboard buttons instead, because of the labelling of the keyboard

This is a frame from one of the Tennis games. Some of the detail on the review sample was different including the name "Wimbledon", to Wimbledon. Notice that the ball casts a shadow.

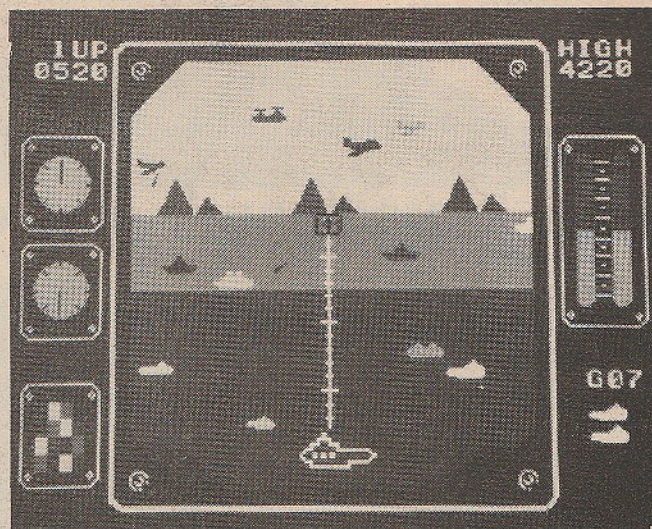
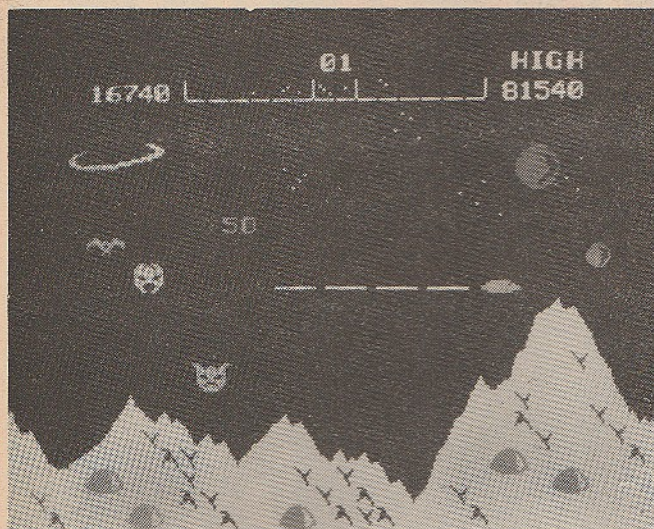
overlays. And using the keyboard for games is a real chore. As with other video games in this price range, the sound effects are produced from the TV set loudspeaker rather than in the console.

All the circuitry inside the console is accommodated on a double-sided PC board measuring approximately 300 x 125mm. The microprocessor used as a version of the Mostek 6502A in conjunction with what would appear to be a CRT controller and PIA of unknown make. The mains power supply is external to the unit and plugs in via a 5-in DIN socket.

The games cartridges use 2716 and 2732 EPROMs and plug into an edge connector slot on the side of the Wizzard console. The TV antenna connection is via a cable fitted with a 75Ω plug and the connection can be made per-



Wizzard video games console



These photos are frames from the Planet Defender and Air/Sea Attack game cartridges. Note the good graphics resolution.

manently via the supplied antenna switch box. The inbuilt RF modulator is set to Australian channel one.

Each games cartridge is supplied with an instruction sheet which lists the game features and the multiple versions which can be for one or two players. We tried a selection of game cartridges and can report that they are quite impressive in comparison with competing video game systems. The colour and graphics capability are used to good effect and in some cases quite cleverly.

Probably the best of the games is the Tennis. This has 16 versions on the one cartridge and includes versions where one player is handicapped so that youthful and ancient players are more evenly matched. Rather than showing a two-dimensional court, an orthogonal projection is used to simulate a three-dimensional game where the ball can go over the players' heads and it casts a shadow!

As might be expected, the players' positions are controlled by the joystick and their choice of forehand or backhand play is determined by their position vis-a-vis the ball. Velocity of play is also affected to some extent by the use of the joystick.

This game really does go a long way towards simulating an actual game, even to the amount of tension and perspiration it can produce!

Sound effects for the various games are fairly predictable and in line with those on comparable video games. Each game has its own signature tune which is played at the beginning and end of each set. This begins to pall quickly, especially if one is losing repeatedly in one-sided games with the machine.

Picture quality on most of the TV sets we tried with the Wizzard was very

good. The exception to this was one set which was affected by bad herringbone interference. However, the other sets were so good that we are inclined to suspect that the latter set was faulty.

Having discussed the games we can pass on to what is perhaps the main feature of the Wizzard and that is the computer option. With the addition of a Basic cartridge the unit will function as a personal computer. On the basis of its features, the Wizzard Basic would appear to be roughly comparable to that in the Tandy TRS-80 (level II) in that it has a full range of mathematical functions (with floating point arithmetic) plus string functions.

The sound facility of the Wizzard is programmable by SOUND commands which control the volume and pitch of four channels (giving chord capability) over a range of 2½ octaves (30 notes). Graphics characters can be created using the CHAR command to fill in an 8 x 8 matrix. These special characters can then be placed anywhere in 32 x 24 grid on the screen using the PLOT command.

The Basic interpreter is resident in 8K

EPROM in the cartridge. Total RAM in the Wizzard is 17K of which about 11K is available for user programs. A cassette interface and deck will shortly be available to clip on to the side of the Wizzard console. And the inclusion of LPRINT and LIST statements in the Basic also suggests that a printer interface may also be in the pipeline.

Naturally, colour can also be added with a COLOR command.

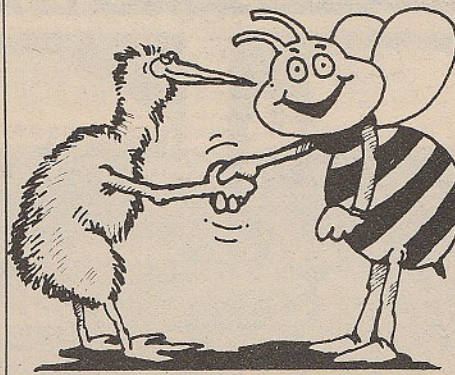
An expansion interface will also be available eventually, to plug into the cartridge connector. This will ultimately give the machine a total memory capability of 48K in RAM.

While it all sounds very promising as a well-optioned personal computer, it is too early to judge the final product. At the time of writing we had only a few hours to try a preliminary Basic cartridge which did not have all the features mentioned above. Nor was the supporting Basic manual, presently being prepared, available.

The Wizzard looks as though it could eventually be a worthy competitor to

Continued on p141

microbee now in N.Z.!



The MicroBee is now in New Zealand. Check-Point Computers provide NZ enthusiasts with sales and support for the MicroBee computer in both kit and built up form. MicroBee will be available to NZ enthusiasts in the following forms:

16K kit MicroBee	\$750NZ
16K Assembled & tested	\$829NZ
32K Assembled & tested	\$990NZ

So call in at our showroom or order your MicroBee direct using Visa or Bankcard.

Check-Point Computers
36, Main Road Tawa (04)326 988
Mail Orders to: P.O. Box 54068,
Plimmerton, Wellington New
Zealand.

rail down to earth. Fortunately, this will not damage the module. The display reading shown by the DPM-200 is the overrange display and in these circumstances is indicative of the fault described above. Upon removal of the short circuit, the voltage at pin 4 should rise to approximately +4.7V.

The thin tracks running between various pins on the DPM-200 (eg between pins 3 and 4) are guard tracks at earth potential. These should not be soldered to the pins, as this will short the pins to earth. From what you have said in your letter, it is likely that you will find that a short circuit between pin 4 and an adjacent guard track on the DPM-200 module is your problem.

ION GENERATOR: Is there a simple way of telling if an Ion Generator is working okay? (R.L., Merimbula, NSW).

● Yes. Sniff it. If it smells of ozone then it is probably working. Whether it is working okay is quite another matter. We do not believe that they are effective, although they may precipitate dust particles from the air.

HEADPHONE SENSITIVITY: I have a pair of compact headphones which were given to me as a birthday present. The problem with them is a disappointing inability to deliver any exciting amount of volume. I have enclosed the specifications with my letter. As stated, they are 32Ω. Is the lack of volume due to the mismatch when plugged into my 8Ω stereo socket. Can anything be done about this such as a matching transformer or equivalent circuit? When plugged into an 8Ω source, the volume control on the particular amplifier has to be turned up to twice or three times the setting which I use for the amplifier's speakers, for the same comfortable listening level.

A friend has a similar pair of 'phones, different brand but 20Ω impedance. These produce a much more acceptable listening level. I previously possessed a 15Ω pair of Sony headphones which delivered enormous volume. Can you offer any advice on the subject? (P.S., Chatswood, NSW.)

● First of all, let us talk about the typical 8Ω headphone socket and the likelihood of mismatch. In fact, the typical headphone feed circuit on a stereo amplifier or receiver is simply a resistor of about 330Ω, in series with the output of each channel. So the true output impedance is of the order of half this figure, or around 150Ω. This order of resistance performs a number of functions.

First, it prevents the output of the power amplifiers from being shorted when the headphone jack is being plugged into the socket. Second, it limits the drive voltage to low impedance phones to a safe level, by dint of the voltage

divider action. Third, it can effectively improve the signal-to-noise ratio of the amplifier. As far as headphone listening is concerned, if you were to connect a typical pair of phones directly across the loudspeaker outputs of the amplifier, you would become instantly aware of a relatively high level hum and hiss which is not normally audible from your speakers. So as far as a mismatch is concerned there is really no problem since every headphone circuit constitutes a severe mismatch in absolute terms.

Given that the headphone circuit on a stereo amplifier is a current source, ie, resistive feed, you will be better off with a headphone that has a low impedance, for a given headphone efficiency. Now considering the specifications of your particular headphones, it does appear that they are fairly normal. Sensitivity is quoted at 96dB/mW which is a fairly typical figure. Rated power is quoted at 50mW which would give a sound pressure level of 113dB which is pretty loud. And the power handling capacity is quoted at 0.5W which would give a maximum sound pressure level of 123dB which is about the level which most run-of-the-mill phones are capable of. In other words, they should give a very loud sound level.

But your experience suggests that they

are well below par in sensitivity. We can only assume that you have been given a pair which just do not meet the spec. We can also say that there is quite a wide disparity in sensitivity between brands and models of these newer supra-aural headphones (which were originally designed to suit the new personal portables). The most sensitive types use the new samarium-cobalt magnets which are very powerful but add only a few dollars more to the headphone price.

In any case, the motto "try before you buy" really does apply when you buy headphones. If you just buy a "bubble pack" from a large retail display you could just be buying a pair of ear muffs.

Electronics Australia Reader Service

"Electronics Australia" provides the following services:

PHOTOSTAT COPIES: \$3 per project, or \$6 where a project spreads over multiple issues (price includes postage). Requests can be handled more speedily if projects are positively identified, and if not accompanied by technical queries. We reserve the right to supply complete back issues instead of photostats, where these are available.

CHASSIS DIAGRAMS: For the few projects which require a custom metal chassis (as distinct from standard cases) dyeline plans showing dimensions are normally available. \$3 including postage.

PC BOARD PATTERNS: High contrast, actual size transparencies: \$3, including postage. Please specify positive or negative.

PROJECT QUERIES: Members of our technical staff are not normally available to discuss individual projects, either in person at our office, or by telephone.

REPLIES BY POST: Limited to advice concerning projects published within the last three years.

Charge \$3. We cannot provide lengthy answers, undertake special research, or discuss design changes. Nor can we provide any information on commercial equipment.

OTHER QUERIES: Technical queries outside the scope of "Replies by Post" or submitted without fee may be answered in the "Information Centre" pages, at the discretion of the Editor.

COMPONENTS: We do not sell electronic components. Prices and specifications should be sought from advertisers or agents.

BACK ISSUES: Available only until our stocks are exhausted. Within six months of publication, face value plus 90c for post and packing for each issue. Seven months and older, \$3 (includes post and packing and storage fee).

REMITTANCES: Must be negotiable in Australia and made payable to "Electronics Australia". Where the exact charge may be in doubt, we recommend submitting an open cheque endorsed with a suitable limitation.

ADDRESS: All requests to the Assistant Editor, "Electronics Australia", Box 163, Chippendale, 2008.

Notes & Errata

SOUND LEVEL METER (May 1981, File 7/M/59): The errata on page 133 of the August 1982 issue neglected to show the 1kΩ resistor connected from pin 2 of IC5 to the zero volt rail. This is best achieved by soldering the resistor beneath the PCB directly from pin 2 of IC5 to the negative side of the 100μF capacitor which also connects to the common earth point of switch S1.

Wizzard video game . . . ctd from p131

the Commodore VIC-20 or the Tandy Color Computer.

Where it is likely to suffer by comparison with these two machines is in the pressure sensitive keyboard which is not as easy to use as a regular typewriter keyboard. And whether there will be a large range of software to suit the Wizzard Basic remains to be seen.

In the meantime, the Wizzard provides a good selection of games cartridges which is likely to expand. The Wizzard console together with one game cartridge sells for \$295 and additional game cartridges are available for \$39.50 each. The Basic cartridge will sell for \$69.50 which will include the companion Basic manual. (L.D.S.)