

# SILICON CHIP MAILBAG



## Feedback on Dr Video's negative rail

I refer to the answer to R. L., on page 92 of the February 2002 issue, regarding the Dr Video negative supply. I also had the same problem and yes, the kitset had been supplied with a 7555 in lieu of a 555. However, replacing the 7555 with two different makers' 555 ICs did not fix the low negative supply rail. Perhaps the LED1 reference for Q4 has a higher forward voltage drop than in the prototype, causing the video output stage to put more load on the negative supply rail?

Anyway, in my case, I was using a 12V regulated plugpack and I found that replacing D1 (reverse voltage protection) with a 1N5819 which has a lower forward voltage drop made a marked improvement to the pre-regulation voltage. I had on hand a Jaycar "surplus" pack of 100V Fast Recovery diodes which had better than 100mV less forward voltage drop than the 1N4004s supplied for D2 and D3 and after fitting these I had about 7.5V into the 7905 -5V regulator. Perhaps 1N5819s in all three positions would be a cheap fix.

Like an earlier correspondent, I also had lower contrast at the output, compared with the input. Replacing D4 with a 1N4004 reduced the 5534's reference voltage by about 100mV and this rectified the problem.

As a matter of interest, I am using the Dr Video to remove the visible data pulses from the top of the picture, when watching ABC TV from a DGTEC STB in Wide Screen mode on a conventional TV (stops the Wide

Screen music video clips from being chopped off at the sides). This was accomplished by switching carefully selected parallel capacitors across C9 and C10. Incidentally, temporarily paralleling a suitable value capacitor at this location will readily verify the action of IC5b in a clearly visible way.

On an entirely different subject, I have been using the rear end of your Dolby Pro Logic circuit (from the November & December 1995 issues) with two TDA1074a ICs, etc, in a preamp after an Onkyo Dolby Digital Decoder. Drastically reducing the value of the 180pF feedback capacitors from the inverting input to output of the inverting output buffers has noticeably improved the sound, bringing it closer to the sound of the DTS versions. However, both myself and a friend (who has recently purchased an upmarket multi-channel SACD player) have been investigating better options for multi channel preamplification. Perhaps your new 6-Channel IR Remote Volume Control will be the answer (or inspiration) to our search.

I hope you don't continue the practice of quickly rolling off the frequency response of your top audio creations. SACD and DVD-A deserve better than conventional top-end tailoring. Good quality modern equipment shouldn't output as much "digital rubbish" as earlier equipment.

I may have ageing and damaged hearing but even 48kHz 24-bit DVD sound compared to the CD version of the same music is obviously more natural sounding when fed through your Class-A modules via the same

modules modified for preamplifier use, but with less intentional HF rolloff.

My friend has also found "good" commercial multi-channel gear sadly lacking on the SACD top quality setting. There is, however, no restriction on using the top setting when using his version of the "class A preamp" with an amplifier with some resemblance to your LD Amplifier (topology wise). I seem to remember reading several years ago, that even loudspeakers should go out to >50kHz to take full advantage of SACD and DVD-A.

Finally, I also am wondering what happened to the plan to locate Digital TV in the UHF band? I live in a mediocre TV reception area where aircraft pulsate the analog picture, there is a degree of multipath reception, and even a new upmarket antenna gives barely acceptable results much of the time. There must be hundreds of thousands of Sydney residents with even worse analog reception than me.

My experience of Digital TV reception is that the picture and sound are mostly superb, but the VHF channels are very susceptible to man-made interference, even when the signal level on the bargraph is in the good signal level area. The analog picture when the lady next door is mowing her lawn with a petrol mower is of course almost unwatchable but the Digital picture and sound is completely wiped out.

Even the fridge light turning on when the door is opened may cause a picture/sound disturbance. A fluorescent light that flickers or a neighbour

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using a food processor is another major cause of disturbances.

However, I may only get a fairly grainy picture on analog SBS in the UHF band and the STB bargraph says that the signal level is too low for reliable decoding yet most of the time I get perfect picture and sound, with a similar amount of disturbances to the VHF channels. Occasionally, in certain weather conditions, the signal level drops marginally and then the decoder has problems.

Why haven't we followed the UK example and put Digital TV in the UHF band which is obviously much more resistant to impulse type interference?

A. Kethel,  
Waitara, NSW.

### No-frills website is good

Congratulations on a useful website. It is useful because it does not have lots of useless irrelevant whirlygig graphics that consume bandwidth and CPU. It gets straight to the point of providing information, which is the only reason I use the net.

Within two mouse clicks I got directly to the information I was looking for. It did not have a convoluted path of links with their associated graphics, to get to the info I wanted.

Willem Corbett,  
via email.

### Shutdown for "no keyboard" computer

Here is a suggestion for a small addition to your very useful "No Keyboard" project in the February 2002 issue.

In not having a keyboard on a computer you can sometimes get stuck by not being able to reset or shut down the computer cleanly. By adding a switch which shorts the necessary lines into the keyboard controller to simulate a "Ctrl-Alt-Del" key press, one will be able to reboot the computer. To find the lines to short, trace the

tracks on the key matrix membrane or PC board.

"Ctrl-Alt-Del" is especially useful for Linux since this performs a clean shutdown and reboot of the system. If other keys are needed (eg, F1), then these could be added as well. A useful addition would be one of the function keys assigned as a shortcut to cleanly shut down Windows.

Karl Gramp,  
Athelstone, SA.

### Check BIOS settings with IR port

What a pleasant surprise to see that nice project for the PC IR Port transceiver in the December 2001 issue. I had been wondering about such a device and there it was. I couldn't wait for the kit so I made my own. In fact, I made two in case one 'died'.

Actually, one did die. It turned out to be because of the settings in the BIOS! The LED current limit of the IR transmitter is set to about 200mA which would quickly fry any LED unless the 'ON' time was only a quick burst.

But what if the LED stayed on? This can happen if the BIOS IR Port output logic is wrong. My Mobo (Gigabyte 7DXC) has the option where the IR input and output can be set to "inverting" or "non-inverting". Mine was set to "TX,RX Inverting Enable . . . Yes, No". This meant the output was inverted and the input non-inverted. So when I plugged in and powered up, the transmitting LED was turned full on, frying it!

Naturally, I wasn't aware of this until I smelt the "Dark Brown Smell" and saw the IR LED give a flash of light and a 'pop'!

I fitted the second IR transceiver with a 100Ω resistor to limit the current to about 20mA. Now I could investigate at leisure without the risk of cooking chips and that's when I finally understood what that 'Inverting Enable' meant in the BIOS. The working settings now are "TX,RX Inverting

Enable.. No, Yes". Yeah, the RX was the wrong way too!

The port works a treat. My laptop can sit on the coffee table no further than a metre from my PC and still connect. I left the 100Ω resistor in place in case the BIOS settings are accidentally changed back.

David Vieritz,  
via email.

### Cure for LCD fault in Parallel Port PIC Programmer

Recently purchased and assembled the Parallel Port PIC Programmer project described in the March 2001 issue. It works well! I did encounter a problem when constructing the Liquid Crystal Display Adapter though and I thought I'd share my experiences so that other builders of this project need not tear their hair out to make it work. I purchased the display from Dick Smith Electronics (Cat Z-4170) and hooked it up using your recommended construction procedure. It did not work!

So, being new to "PICs" I embarked on the learning curve and dissected the code. It worked just fine in the simulator software available from MICROCHIP.COM (free) but the hardware refused to cooperate. Some (considerable) hardware debugging and many cups of black coffee finally stimulated the old grey cells to recall that CMOS-based peripherals often exhibit out-of-spec response times.

Focusing on the "LCDBUSY" subroutine in the program led to a detailed investigation of the LCD display response time to instruction "MOVF LCD\_DATA,W" in this subroutine. Sure enough, the PIC did not read this correctly. It read some arbitrary data after executing this loop many(?) times. The trick I remembered was to re-read the peripheral several times if necessary. This fixed the problem and the program and hardware are working now.

To summarise, if you have problems getting the LCD display project

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to work, find and change:

```
MOVF LCD_DATA,W  
to  
MOVF LCD_DATA,W  
MOVF LCD_DATA,W
```

in subroutine "LCDBUSY", then 're-build' the program and write it to the PIC using the Programmer.

Frank Winter VK4BLE,  
via email.

### A salve for greenhouse consciences

With regard to your article on solar power in the March 2002 issue, there is a cheaper and easier way to balance out the greenhouse gases that your car makes. Just pay \$30 to the Green Fleet Sustainable Energy Authority. They claim that your \$30 will be used to plant two trees that will convert the CO<sub>2</sub> gases generated by the average car. This is cheaper than changing your car.

Green Fleet have a web where you can go and find out where your trees have been planted. The URL is: <http://www.greenfleet.com.au/hm/who/who.htm>

Roderick Wall,  
via email.

### Electric wiring regulations

I have been a reader of SILICON CHIP for many years and I have noted several letters to the Editor from technicians (and possibly others) who are irritated by the restraints that they are placed under by electrical wiring regulations in Australia. I sympathise with them but it is very difficult to change such arrangements if such a move is seen by employee unions as having the potential to reduce employment opportunities.

My impression from this side of the Tasman is that the Australian union movement is a very strong one and is most unlikely to support the introduction or amending of new legislation that had the potential to reduce or eliminate employment opportunities for electrical workers.

The situation in New Zealand is covered by the 1992 Electricity Act which allows householders to carry out their own wiring but this wiring cannot be connected to a source of supply until it has been inspected and tested by a registered electrical inspector. Work of this nature carried out for hire or reward must be done by a registered electrician.

All wiring work done must (necessarily) comply with regulations made under the Act as well as any relevant Codes of Practice. There are also exemptions for the repair of domestic appliances by a householder where these are solely for use on domestic premises. The above are only two small extracts from an Act that covers 123 pages but it seems to work well and the electricians that I know are still earning a comfortable living.

As a registered engineer I am entitled to carry out so called "prescribed" electrical work but recently when I had a new electric stove installed I found it much more convenient to use the services of an electrical contractor. In this world, there is no substitute for experience and he was self-employed, fast and effective.

John C Rogers,  
via email.

### Inaccuracy in regard to tidal power

Ross Tester was inaccurate when talking of tidal power generation in the article on solar power in the March 2002 issue. The tide off north-western Australia often exceeds 10 metres 'P-P' but the peak spring tides are only a little more, I think around 13m. 'Tens of metres' is literally correct but misleading.

The plan for the Derby tidal power plant is to use hydraulic 'diodes' to pump up a 'capacitor' consisting of adjacent dammed inlets. One inlet would be 'positively' charged (thus tending toward 10m of stored water) and the other 'negatively' charged (tending toward 0m). The power gen-

eration equipment is sited between the two inlets and can work continually. Furthermore, peak generation can be matched to peak demand, not to peak tidal change. I think the newer dollar-saving cutdown plan for the plant is to have 50MW capacity, where the capability at the site is an order of magnitude more.

Ross should also have talked about batteries and the economic and environmental cost of maintaining them.

Another interesting issue with wind and photovoltaic generation is that there are benefits to having generation spread out as far as the grid reaches. Depending on the site, actual power generation is only 30% or so of peak generation, because of calm periods. Western Power is planning a wind farm in Geraldton, about 800km around the coast from Albany. Thus there will be some load-leveling because the weather at the two sites will not be the same.

Kevin Shackleton,  
Cataby, WA.

*(Editor's note: recent reports suggest there is some doubt about the financing of the Derby tidal power project).*

### Locating an article from ETI

I am trying to find an article published, if I remember correctly, in *Electronics Today* magazine, in the early 1970s. It was about the meaning of "watts" in relation to audio amplifier power output.

The general thrust was that they would use "Watts RMS" because most hifi magazines did, even though it was not correct. The article stated (correctly) that it should be "Watts Average" and did some math justification for that. Can you help me?

Doug Tipping, 140c Wonga Rd,  
North Ringwood, Vic.

*Comment: at this stage we are unable to help you since we do not have an index of the feature articles that appeared in ETI. However, we have published your letter in the hope that one of our readers can locate the article.*

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