# Overclocking the GVP 4040 TREX-1.

The GVP 4040 (sometimes referred to as the TREX-1) is a 40MHz 68040 board for the A3000 and A4000. Information on it is particularly hard to find, so all I know about it is listed here. This board will accept up to two special GVP type SIMMs, either 4MB or 16MHz size. There are two expansion sockets provided, possibly either for a SCSI adaptor, a video card, or further expansion memory. As far as I know, none of these peripherals were ever made.

This board uses a PLL (Phase Locked Loop) circuit to generate the required 40MHz and 80 MHz 68040 clocks from a 20MHz oscillator. Usage of a PLL means that there is a limitation to the maximum amount of overclocking as the PLL tends to behave erratically when it's rated frequency is exceeded. Fortunately, most PLLs will give around 5MHz extra, which is reasonably worthwhile.

Overclocking this board is easy. There is only one oscillator module, and it is already socketed. I was able to get the board to work well on a 24Mhz oscillator, corresponding to 48Mhz for the 68040. Unfortunately, the system would lock up about an hour or so later. This seems to be heat related. At this stage, I have not determined exactly where the problem is, except that I'm suspecting something on the board itself rather than the 68040. I have not noticed anything getting really hot (including the 68040), so a cure my simply involve a small heatsink fitted to whatever is causing the problem. In any case reducing the frequency slightly is probably the best way to achieve reliability, and I found a 23Mhz oscillator worked very well. Don't forget, your mileage may vary.

The 4040 has a number of jumper settings. As these don't seem to be published elsewhere, they are listed below. It is possible some of the "Reserved" jumpers may set where the GVP memory is mapped and/or may control operation of the on-board expansion connectors mentioned above.

JP1: - RESERVED... Default = Off (no jumper fitted)

JP2: - RESERVED... Default = Off (no jumper fitted)

JP3: - RESERVED... Default = Off (no jumper fitted)

JP4: - STARTUP MODE... ON = Motherboard CPU present (ie A3000), OFF = No motherboard CPU present.

JP5: - RESERVED... Default = Off (no jumper fitted)

JP6: - 4040 BOARD ENABLE... ON = Disabled (use motherboard CPU), OFF = Use CPU on 4040 board.

JP7: - BURST MODE... ON = Enabled.

JP8: - RESERVED... Default = Off (no jumper fitted)

JR1: - BURST WRITES... Default = ON (jumper fitted)

JR2: - BURST READS... Default = ON (jumper fitted)

JR3: - SIMM SIZE... ON = 16MB SIMMs, OFF = 4MB SIMMs.

JR4: - RESERVED... Default = Off (no jumper fitted)

JR5: - RESERVED... Default = Off (no jumper fitted)

JR6: - RESERVED... Default = Pins 2 & 3 connected.

CN6: - FAN POWER, 5VDC power connector for CPU fan.

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Back to main Amiga page.

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