Release Notes

Modifications to QT960 Rev. 2.1 and 2.2 boards

1) A chip bug in the 82380 causes its timers to occasionally be loaded with corrupted data when SCLK transitions within a certain window on either side of a CLK2 "A" edge during a write to a timer register. This problem can be solved by clocking the timers with a clock that does not transition during the critical window (i.e. is synchronous to the system clock). This modification causes the 82380 timers to run off of a clock synchronous to CLK2 at one half the processor frequency (i. e. 10 MHz on the 20 MHz QT960). Without this modification the timers run off of an independent 9.8304 MHz oscillator. This has three implications: 1) The modified timer is running at a slightly different frequency so that software designed for the old frequency will operate differently, 2) The modified timers will no longer be independent of board operating frequency - on a 16 MHz board the timers will operate at 8 MHz, and 3) The board may not operate correctly at frequencies above 20 MHz because the 82380 timers are not specified to operate above 10 MHz. Given these implications it may not be desireable to modify all boards. The timer problem is an extremely rare occurence and will not be of significance to all users. To do the modification make the following changes to your QT960 board:

i) Make sure PAL 2U26C (sumcheck 48CC) is installed.

ii) Turn the QT960 board over so that you are looking at the solder side. Locate the 82380. Locate pin N11. Note the circuit trace attached to pin N11. Cut this trace using a sharp knife being careful not to cut any adjacent traces or cut into any deeper circuit traces. A good way to do this is to locate resistor R9 and, using an Ohm meter, measure the resistance between R9 and the 82380's pin N11. The resistance should be either zero or 33 Ohms. Periodically measure this resistance while cutting through the trace. As soon as this resistance becomes large (more than 1000 Ohms) stop cutting.

iii) Solder a wire between the 82380's pin N11 and PAL 2U26 pin 17. This completes the modification.

2) Socket U31 for the PM7022 12.75V hybrid power supply has been eliminated. This was done because all Flash devices used in the QT960 now use 12V for Vpp. In place of the socket a 2.0 uF decoupling capacitor has been installed to reduce noise when an external Vpp source is used. If you want to install a socket for a Vpp supply hybrid do the following:

i) Unsolder the capacitor between U31 pins 14 and 10 and remove.

ii) Solder the capacitor between pins 14 and 10 of a 24-pin DIP socket making sure that it does not interfere with socket function and that the positive lead of the capacitor is tied to pin 14.

iii) Install the 24-pin DIP socket at U31. Pin 1 should face the wire wrap area.