



**FIGURE e2.15.6** The control flow graph showing the representation of the *while* loop example after code motion and induction variable elimination and register allocation, using the MIPS register names. The number of IR statements in the inner loop has now dropped to only four from six before register allocation and ten before any global optimizations. The value of *i* resides in *\$t2* at the end of the loop and may need to be stored eventually to maintain the program semantics. If *i* were unused after the loop, not only could the store be avoided, but also the increment inside the loop could be eliminated completely!