

```
/* The steps below assume that two 32-bit operands are
   located in registers labeled R5 and R6, and that the
   microcode must use 16-bit registers labeled r0 through
   r3 to compute the results.
```

```
*/
```

```
add32:
```

```
    move low-order 16 bits from R5 into r2
    move low-order 16 bits from R6 into r3
    add r2 and r3, placing result in r1
    save value of the carry indicator
    move high-order 16 bits from R5 into r2
    move high-order 16 bits from R6 into r3
    add r2 and r3, placing result in r0
    copy the value in r0 to r2
    add r2 and the carry bit, placing the result in r0
    check for overflow and set the condition code
    move the thirty-two bit result from r0 and r1 to
      the desired destination
```

Figure 8.4 An example of the steps required to implement a thirty-two-bit macro addition with a microcontroller that only has sixteen-bit arithmetic. The macro- and micro architectures can differ.