C/C++ Testbench-HLS Coding: Quiz Solution

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The following code is the test bench for the design

```
1- int main() {
     int status = 0;
2-
3-
     unsigned short int a, b;
4-
5-
     for (unsigned int i = 0; i < 65536/2; i++) {</pre>
6-
       a = (unsigned short int)i;
7-
       design_file(a, &b);
8-
9-
       if (b != 2*a) {
10-
         status = -1;
          std::cout << " Error at" << " i = " << i</pre>
11-
                      << " a = " << a
12-
                               << " b = " << b
13-
                               << " 2*a = " << 2*a
14-
                               << std::endl;
15-
         break;
16-
17-
18-
       }
19-
    if (status == 0) {
20-
21-
      std::cout << "Test Passed" << std::endl;</pre>
22-
     } else {
       std::cout << "Test Failed" << std::endl;</pre>
23-
24-
25-
26-
     return status;
27- }
```

The for-loop at Line 5 generates all the possible design input.

Line 4 prepares the design top-function input argument.

The generated test vector is applied to the design at Line 7.

The if statement at Line 9 check any possible error in the design output and report the possible discrepancy.