What does the number 10001 represent?

MIPS:
```
move $1, $0
sub $0, $0, $0
```

ASCII:
```
#
0
255,0
unsigned: 3510
```
A + B = C

\[
\begin{array}{c|c|c|c|c|c|c}
A & B & C & D & S & C1 & C0 \\
---&---&---&---&---&---&--- \\
0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & C \\
0 & 0 & 1 & 0 & 0 & 0 & C \\
0 & 0 & 1 & 1 & 0 & 0 & C \\
0 & 1 & 0 & 0 & C & 0 & 0 \\
0 & 1 & 0 & 1 & C & 0 & 0 \\
0 & 1 & 1 & 0 & C & 0 & 0 \\
0 & 1 & 1 & 1 & C & 0 & 0 \\
1 & 0 & 0 & 0 & 0 & 0 & 0 \\
1 & 0 & 0 & 1 & 0 & 0 & D \\
1 & 0 & 1 & 0 & 0 & 0 & D \\
1 & 0 & 1 & 1 & 0 & 0 & D \\
1 & 1 & 0 & 0 & D & 0 & C \\
1 & 1 & 0 & 1 & D & 0 & C \\
1 & 1 & 1 & 0 & D & 0 & C \\
1 & 1 & 1 & 1 & D & 0 & C \\
\end{array}
\]
Adder/Subtractor

\[ \text{Sub} = \begin{cases} 
0: & A + B = A + B + \overline{C} \\
1: & A - B = A + \overline{C} - 1 
\end{cases} \]
endmodule fulladd pos3 (count[c][3], s[c][3], a[0], b[0], c[0])

fulladd pos2 (count[c][2], s[c][2], a[1], b[1], c[1])

fulladd pos1 (count[c][1], s[c][1], a[2], b[2], c[1])

fulladd pos0 (count[c][0], s[c][0], a[3], b[3], c[0])

module greaterthan (out, a, b);

output out;
input [2:0] a, b;
wire [3:0] c, s;

endmodule
derived

module fulladd (count, s, a, b, cin);

output count;
input s, a, b;
wire c;

assign s = a & b | cin;
assign count = (a'b) | (a & cin) | (b & cin);

output count s, a, b, cin;
module fulladd (count s, a, b, cin);
DO NOT RIP UP, DEBUG!

Examine inputs and outputs to find earliest place where value is wrong. Typically, trace backwards from bad outputs, forward from inputs. Look at values at intermediate points in circuit.

Identify any incorrect behaviors.

Test all behaviors.

All combinations of inputs for small circuits, subcircuits.