**Chapter 2, Data Types homework 3 solution**

1. *Test plan*
   1. *Check all the reset values*
   2. *Write FFFF to every register*
   3. *Read every register, expecting FFFF*
   4. *Reset and check reset values again.*
   5. *Write and read a walking 1's pattern to each register*
   6. *Write FFFF to a single register, read every register, and then clear the register just written back to it's reset value*
2. *See Chap\_2\_Data\_Types/homework3\_solution for solution.*
3. *Complete bug report for the 8 bugs*
   1. *adc0\_reg:*
      1. *Design Input for Bug to Appear:  Writing/reading walking 1’s.*
      2. *Expected Behavior: Read 0001*
      3. *Observed Behavior: Read 8001*
   2. *adc1\_reg:*
      1. *Design Input for Bug to Appear:  Writing/reading walking 1’s.*
      2. *Expected Behavior: Read 0002*
      3. *Observed Behavior: Read 0200*
   3. *temp\_sensor0\_reg:*
      1. *Design Input for Bug to Appear:  Write FFFF to all registers. Then read*
      2. *Expected Behavior: Read FFFF*
      3. *Observed Behavior: Read FFFE*
   4. *temp\_sensor1\_reg:*
      1. *Design Input for Bug to Appear:  Write FFFF to all registers. Reset*
      2. *Expected Behavior: Read 0000*
      3. *Observed Behavior: Read FFFF*
   5. *analog\_test:*
      1. *Design Input for Bug to Appear:  Reset*
      2. *Expected Behavior: Read ABCD*
      3. *Observed Behavior: Read ABCC*
   6. *digital\_test:*
      1. *Design Input for Bug to Appear:  Writing/reading walking 1’s.*
      2. *Expected Behavior: Read 0020*
      3. *Observed Behavior: Read 0000*
   7. *amp\_gain:*
      1. *Design Input for Bug to Appear:  Writing/reading walking 1’s.*
      2. *Expected Behavior: Read 0040*
      3. *Observed Behavior: Read 0020*
   8. *digital\_config:*
      1. *Design Input for Bug to Appear:  Write FFFF to all registers. Then read*
      2. *Expected Behavior: Read FFFF*
      3. *Observed Behavior: Read 7FFF*