1. V-DMM85 Design Goals   
   1. The V-DMM85 is intended to fit a bit of a niche hole in the electrical instrumentation market, that being the high-precision portable multimeter. Some DO exist, but nothing with the long-term stability afforded by the LTZ1000 or the modularity I aim to incorporate. The V-DMM85 shall be single-hand portable with a single-hand operable user interface. The meter will be able to display 8.5 digits (less at first as calibration is needed). The internal LTZ1000 voltage reference will be hermetically sealed and ovenized for maximum stability and long-term performance. High quality Vishay hermetically sealed resistors and capacitors will be used for similar reasons. The multimeter will use a Maxim MAX32650 ARM processor for all primary processing work, along with display and input interface. Component selection is still in progress for most components, but Analog Devices will most likely be the primary semiconductor fab for most of the design. For interface, measurement connectors will be 4mm banana jacks (yes, I know binding posts are better, however I would be sacrificing a lot of physical real-estate) along with a BNC for external trigger. For measurement capabilities, I am not 100% set on any specifications, however I would like to primarily focus on DC voltage ranges up to 100V, AC voltage ranges up to 100V, DC and AC current ranges up to 2.5A, resistance ranges from 1kΩ to the upper MΩ range. GΩ would be fantastic but I sincerely doubt I can pull that off in such a compact meter. I would also like to include frequency measurement and temp/thermocouple measurement.
2. Architecture and Preliminary Component Choices  
   1. Main Processor: Maxim MAX32650 ARM-M4 Processor with 3MB Flash and 1MB SRAM
      1. Rationale: ARM architecture is incredibly well documented and available to design for. Along with this, Maxim integrated much of the peripheral circuitry that would have added complexity to an already nightmarishly complex project.
   2. ADC: (Uncertain) AD7716BPZ 22-Bit Delta-Sigma Data Acquisition System
      1. Rationale: Its Analog Devices and its extremely good at its job. Simple as that.
   3. Internal Voltage Reference: LTZ1000
      1. Rationale: It’s the best “readily” available voltage reference on the market. On top of that, the non-A variant is more affordable, however it does have less thermal resistance which will need to be considered.
   4. Input Ranges:
      1. DC Volt
         1. 1V, 10V, 100V full range bipolar with switchable resistances of 1M, 10M and 1Gohm.
      2. AC Volt
         1. 1V, 10V, 100V full range bipolar with switchable resistances of 1M, 10M and 1Gohm
      3. Selectable Integration times
         1. 1, 10, and 100 power line cycles.
      4. Resistances (4 Wire)
         1. 1k, 10k, 100k, 1M, and 10M
      5. DC and AC Current Ranges
         1. 100uA, 1milliA, 10milliA, 100milliA, 1A
      6. Temp/Thermocouple