**Bulldogs Racing Design Summary**

With BR16, we switched to an all-electric drivetrain from our usual hybrid setups and used two Emrax 207 MV motors coupled to 4:1 planetary gearboxes for independent direct-drive on rear wheels, saving us the weight of a differential and sprocket system. The battery box is built around 86 AMP20 pouch cell batteries wired in series to provide a nominal 284 V and 200 A output, sufficient to take the motors up to 6000 RPM and 160 kW. Using 21 in outer diameter 8 in wide Hoosiers in the rear, BR16 is able to accelerate from 0 to 60 mph in 2.5 s and reach a top speed of 90 mph. On the vehicle dynamics front, we have opted for a neutral motion ratio around 1.01 both in the front and rear. We used 85 lbs/in springs in the front and 110 lbs/in springs on the rear for natural frequencies of 2.52 Hz and 2.4 Hz, respectively, with the option of switching to stiffer springs for tracks that require less compliance. We decided to forego the anti-roll bars, since we were able to hit a roll gradient of 0.57 deg/g both in the front and rear, thanks to a 250 mm CG height courtesy of the battery box positioned at the lowest plane on the car and a 550 lbs dry total weight.