



PARTNERSHIP PROPOSAL

Cal Poly San Luis Obispo | Formula & Baja SAE Teams

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CELEBRATING
65 YEARS
OF CAL POLY
SAE

E1 MUSTANG
SEPT. 16, 1949
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STRICT CHAIRMAN WILL PRESENT
A E CHARTER TO CAMPUS

The Cal Poly student branch of the Society of Automotive Engineers will hold its first meeting of school year next Thursday at 8 p.m. in the Engineering Auditorium, according to Al Gorenbein, student branch chairman.

SAE Southern California section. Formal presentation of the Cal Poly Student Branch charter will be made by Stunkel. A talk concerning the SAE will be given by Edward W. Rents, manager of the West Coast SAE branch office.

Everyone is invited. Advisor to the student branch is Thomas Hardgrove, mechanical engineering instructor.

Auto engineers take
4th in Mint 400 race

CLEANER AIR VEHICLE

CALIFORNIA POLYTECHNIC
SAN LUIS OBISPO

CAL POLY
Racing
SPONSORED BY
Solar Turbines
A Caterpillar Company

ABOUT US

Cal Poly Racing is California's largest student chapter of the Society of Automotive Engineers (SAE). Our team is composed of over eighty active members, and each year we design, manufacture, test, and compete with three innovative race vehicles as participants in the SAE Collegiate Design Series. This series challenges university students from around the world to apply their skills outside of the classroom as part of a project that closely imitates industry practices. Cal Poly Racing is the only team in California that fields vehicles in all three of the series' major competitions: Formula SAE, Formula SAE Electric, and Baja SAE.

Our vehicles are evaluated by industry experts not only for their performance characteristics and incorporation of innovative designs, but also for their potential as production items. Because of this, we are more than just a team of engineers. Cal Poly Racing is composed of students from various disciplines who function together as a business. This enables our members to practice project management, finance, and marketing in addition to engineering. The experience and skills developed by members of our team cannot be acquired in any other university setting, and this gives us unparalleled preparation for success in our careers.

To meet our ambitious competition goals each year, Cal Poly Racing requires the generous support of industry partners for materials and services. We seek to develop mutually beneficial relationships with our partners, who choose to contribute materials, knowledge, services, or other forms of support. In return, we offer partners increased brand recognition and networking opportunities with our talented student members.

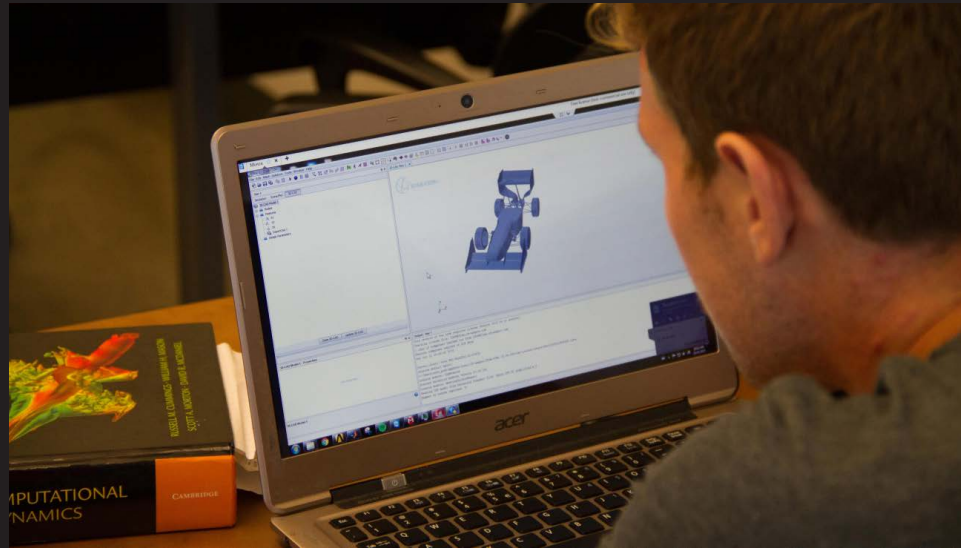
BAJA & FORMULA TEAMS



THE PROCESS

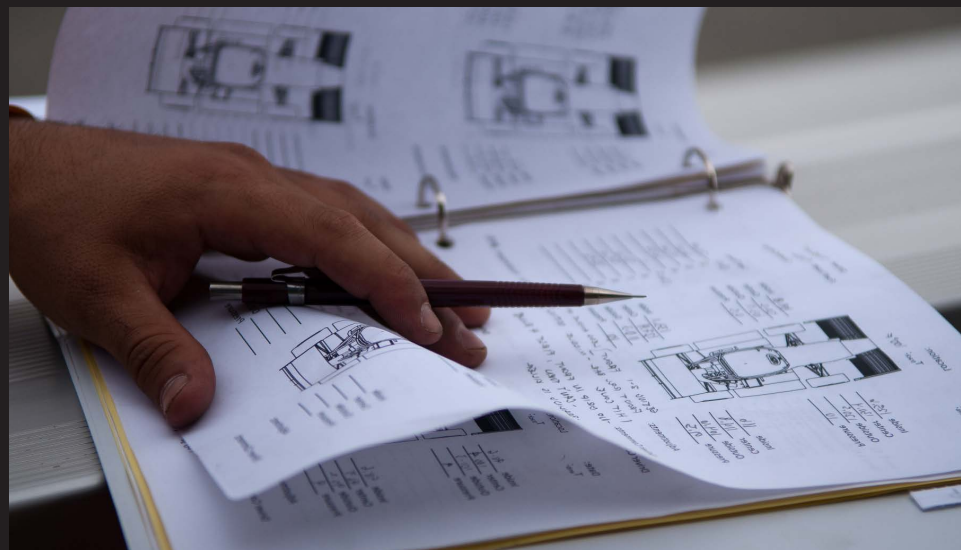
DESIGN

Our students spend several months designing each vehicle. The car design goes through a rigorous design process where teams present a PDR and CDR to industry leaders, alumni, and Cal Poly staff.



BUILD

Each winter members begin fabricating all of the parts for each car. The process lasts for several months.



DRIVE

Once the car is built students begin test driving to validate their designs and tune the cars for competition conditions.



ABOUT BAJA SAE

Our Baja SAE team has top performing cars, placing 12th at the Washington competition in 2013, 9th at the 2014 competition in Texas, and 5th at the 2015 competition in Oregon. The competition challenges the car during a 4 hour endurance race, rock crawl, hill climb, and acceleration challenges. These events are designed to push our engineering designs to failure, and rolling vehicles is a common result. We train our drivers to read the demanding off-road courses through vigorous testing, which also ensures that our designs will be reliable throughout the competition.



BAJA SAE
2015-2016

BAJA CAR SPECS

This rear wheel drive vehicle has a turning radius of just under 6 feet, a top speed of 38 miles per hour, and is capable of safely and reliably overcoming tough terrain. It features a unique five link suspension, Fox Float air shocks, a 10HP Intek Model 20 engine - generously provided to all teams by Briggs and Stratton - a fine-tuned continuously variable transmission, high impact custom composite body panels and skid plates, and a custom built high efficiency gearbox.



Suspension

23 inch tires
9 inch ride height
10 inch shock travel



Powertrain

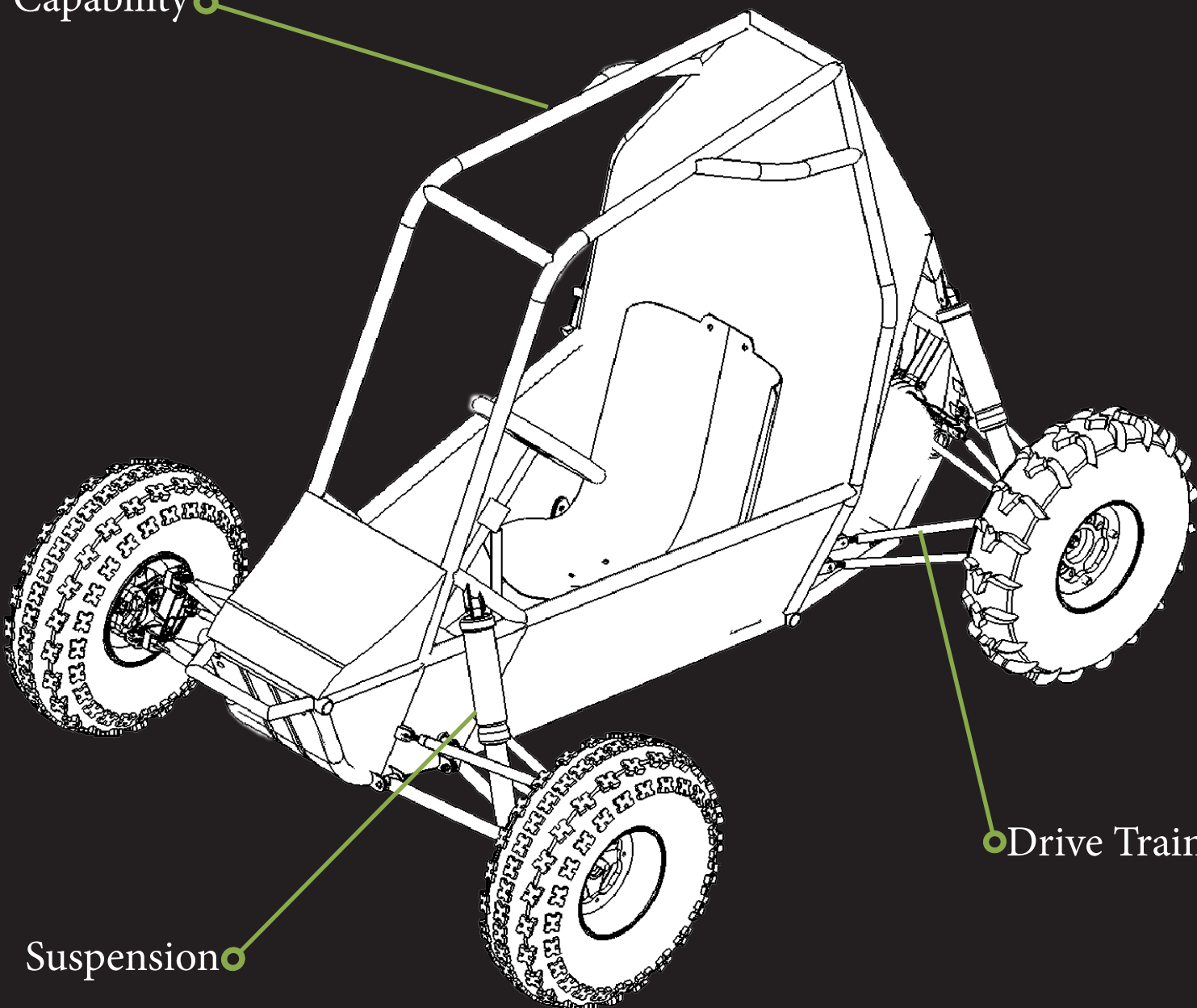
Fine tuned continuously variable transmission
10 HP Intek Model 20 engine
Optimized gearbox to deliver maximum power to the wheels



Capability

Turning radius just under 6 feet
Top speed 38 MPH
High impact body panels

Capability



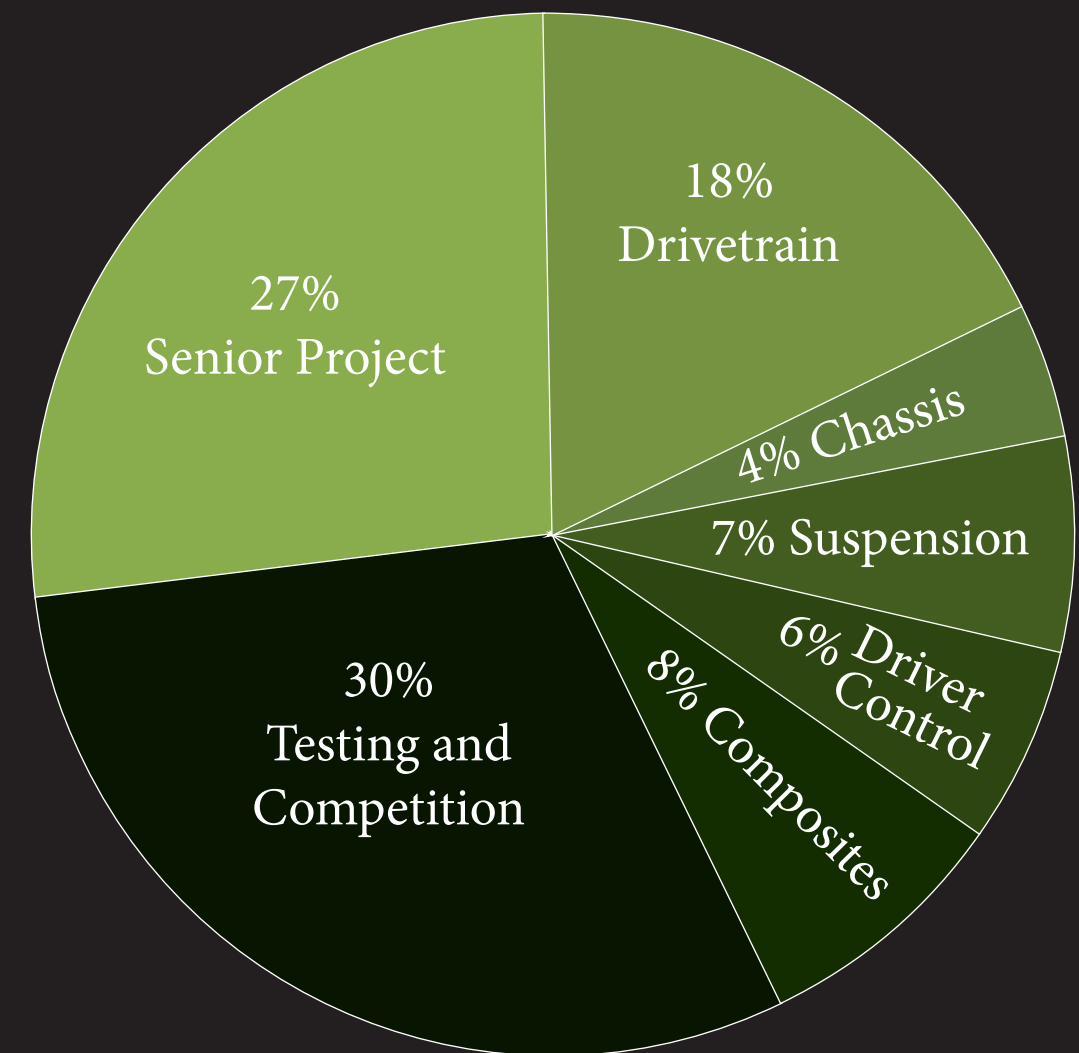
Suspension

Drive Train



BUDGET

The Baja team's budget is divided between drivetrain, chassis, suspension, driver control, composites, testing and data acquisition equipment, as well as the travel and registration costs associated with competing. As the figure shows, subsystem materials take the lion's share of the overall budget.



Total Budget: \$30,080

ABOUT FORMULA

At the Formula SAE Lincoln competition in 2015, Cal Poly Racing's combustion vehicle placed 7th in the Autocross event. Of the 65 teams at the competition, only six were faster – most by a very slim margin. Our Formula SAE Electric vehicle endured extensive testing last year, demonstrating that we are one of the few teams in the United States capable of reliably running one of these vehicles.

Based on these past successes, the 2015-2016 competition year is an exciting time for our Formula SAE team, which is now a single team building both combustion and electric vehicles on the same platform. Cal Poly Racing has included separate Formula SAE combustion and Formula SAE Electric teams since the latter's founding in 2007. Combustion and electric vehicles are subject to the same rulebook for competition, but our vehicles have been designed and constructed separately — until now.

A photograph of a Cal Poly Racing Formula SAE combustion vehicle, primarily black with green accents, driving on a racetrack. The driver is wearing a blue racing suit and a black helmet. The car features various sponsor logos, including 'CAL POLY RACING', 'YAMAHA', and 'SAE'. The background shows a clear blue sky and some distant structures.

FORMULA SAE

2015-2016

FORMULA CAR SPECS

This year, our larger, unified Formula SAE team has designed its combustion and electric vehicles with as many similarities as possible. This strategy enables us to incorporate proven designs from both previous vehicles, manufacture the new vehicles in parallel, and develop new innovations at a rapid pace. The combustion and electric vehicles will share suspension, steering, brakes, ergonomics, aerodynamics, and drivetrain systems with only minor configuration differences. Both vehicles will utilize identical front carbon monocoques as driver cockpits. The layup process for our monocoque design has been significantly overhauled to improve chassis stiffness. Both cars will share a suspension system that incorporates new boxed-steel uprights that are 33% lighter than any we have developed before.

The driver controls system on our combustion vehicle will incorporate no-lift upshifts and rev-matched downshifts to maximize drivability and shave precious second off of our lap times. Our electric car's powertrain will benefit from regenerative braking, which maximizes range, and a stiffened drivetrain for increased power delivery.



Chassis

Carbon fiber front monocoque
Steel tube rear subframe
All-carbon impact attenuator



Brakes

Brembo P34 front calipers
Brembo P32 rear calipers
Tilton 75 series master cylinders
Drilled and slotted ductile iron rotors

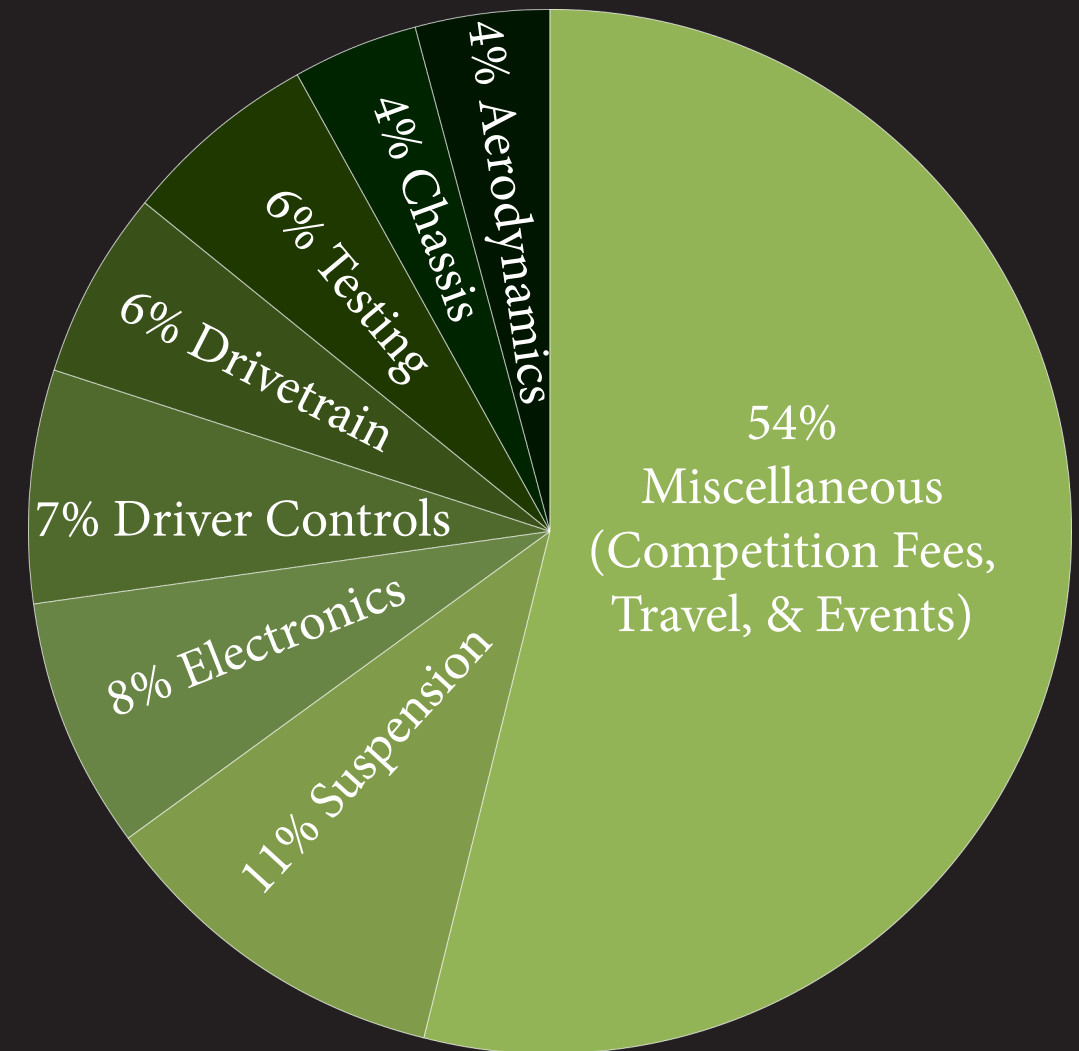


Suspension

Double unequal-length A-arms
Pushrod actuated coilovers
Ohlins TTX25 MkII double barrel dampers



BUDGET



Total Budget: \$38,750

PARTNERSHIP LEVELS

Building prototype vehicles that are internationally competitive requires significant resources. Partners of Cal Poly Racing choose to support our team in various ways. Corporations, small businesses, and individuals can all make meaningful contributions to our efforts. In return, we offer many benefits to our partners. Depending on your level of support, you have access to the following benefits and more:

-  Your company’s branding will be displayed on our vehicles, website, and apparel, giving you exposure to thousands of engineering students and professionals through our events and competitions.
-  Your company will be promoted through social media and through our newsletters, allowing you access to almost 5,000 racing fans.
-  You will have direct access to our team’s body of talent should you be interested in hiring interns or full-time employees.

Cal Poly Racing seeks out industry partners who can provide components and raw materials. Due to our extensive in-house production, we also have a great need for new and used machine shop equipment and tools. In addition, partners can offer services such as advanced machining, powder coating, and heat treating.

You may also choose to contribute technical insight that can help improve the design, manufacturing, and testing of our vehicles. As students, we value the learning experience that being part of a racing team provides, and we greatly appreciate partners who choose to share their knowledge with us.

If you are interested in supporting us monetarily, your contribution can be targeted to a specific team purchase or general use. Ask us about the different ways you can contribute. All donations are tax-deductible.

With Cal Poly Racing

<u>\$25000 +</u>	<u>Mustang Level</u> All Platinum Level benefits, plus: • Extra-large logo or personal name on all of our vehicles • Private drive day event with photography session • Short video feature upon request
<u>\$8000 +</u>	<u>Platinum Level</u> Includes Gold Level benefits plus: • Large logo or personal name on all of our vehicles • Feature article on the Cal Poly Racing website • Feature article in the Cal Poly Racing newsletter
<u>\$3000 +</u>	<u>Gold Level</u> All Silver Level benefits, plus: • Logo or personal name on our apparel • Feature article on social media • Direct access to team member resumes
<u>\$1500 +</u>	<u>Silver Level</u> Includes Bronze Level benefits plus: • Logo or personal name on all of our vehicles • Invitation to Partner Drive Day • Up to 6 Cal Poly Racing T-shirts
<u>\$750 +</u>	<u>Bronze Level</u> • Logo or personal name on the Cal Poly Racing website • Logo or personal name in the Cal Poly Racing newsletter • Social media mention • Up to 4 Cal Poly Racing T-shirts



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www.calpolyracing.org