News

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Camaro ZL1 Delivers 580 Horsepower and Exclusive Technologies

- Supercharged, 6.2L LSA V-8 delivers 580 horsepower (427 kW) and 556 lb.-ft. of torque (754 Nm)
- ZL1 power complemented by exclusive Magnetic Ride Control and Performance Traction Management
- Track-capable standard equipment includes high-performance fuel system, as well as engine, transmission and differential coolers

DETROIT – The 2012 Chevrolet Camaro ZL1's supercharged 6.2L engine is SAE-rated at 580 horsepower (427 kW) and 556 lb.-ft. of torque (754 Nm) – making it the most powerful production Camaro ever.

The ZL1's outstanding power is complemented by advanced powertrain and chassis technologies, including exclusive Performance Traction Management and third-generation Magnetic Ride Control.

"The Camaro ZL1 delivers supercar performance and technology in the sports-car segment," said Al Oppenheiser, Camaro chief engineer. "For sheer power, the ZL1 delivers more horsepower than a Ferrari 458, more torque than an Aston Martin DB9 V12, and a better power-to-weight ratio than a Porsche 911 Carrera GTS.

"The Camaro ZL1 also features exclusive chassis and traction technologies," Oppenheiser said, "to offer the best of all worlds – including balanced handling for the track, acceleration for a drag strip, and the comfort of a daily driver."

The most powerful production Camaro ever

The 2012 Camaro ZL1's surpasses the advertised power of the legendary 1969 Camaro ZL1's 427 cubic-inch big block by more than 150 horsepower (112 kW) – while meeting modern emissions requirements. And, the new ZL1 is backed by General Motors' five-year / 100,000-mile powertrain warranty.

"The torque is going to make the ZL1 a car you won't want to get out of," said John Rydzewski, assistant chief engineer for small block engines. "Not only will the ZL1 have more power and torque than the competition, we're making it available with an optional automatic transmission, to appeal to a wider group of sports car enthusiasts."

The all-aluminum LSA supercharged V-8 is part of GM's legendary small-block engine family. For a solid foundation, the engine's lower end uses six-bolt main bearing caps that clamp and lock in the forged steel crankshaft to the deep-skirt block. Its 1.9L Roots-style blower uses an

efficient four-lob rotor set and compact intercooler to deliver boosted air into the high-flow cylinder heads.

For the Camaro ZL1, the LSA features a unique induction system, with a lower-restriction air filter, dual inlet paths, and improved airflow through the supercharger housing. Other changes include a higher-efficiency supercharger intercooler and electric power steering system, which consumes less engine power than hydraulic-steering systems.

The ZL1 will be offered with either a six-speed manual or automatic transmission. The Tremec TR-6060 “MG9” manual features 30 percent more torque capacity than in the Camaro SS. The higher torque capacity results from a strengthened output shaft, high-strength rear housing, and additional roller bearing. The MG9 has also been tuned for improved shift feel, with a dual-mass flywheel, twin-disc clutch, and triple synchros for smooth, precise shifts.

Similarly, the Hydra-Matic 6L90 automatic has been strengthened to handle the torque and horsepower produced by the 6.2L supercharged small block. The 6L90 features a strengthened input gearset with two additional pinion gears, additional clutch plate, and a strengthened output shaft and gearset. To make the ZL1 perform equally well on street and track, the 6L90 features three distinct drive modes:

- Drive: The shift pattern is calibrated for optimal fuel economy, including second-gear starts, while the shift feel is tuned for a smooth driving experience. Engaging the tap-shift feature on the steering wheel or shift lever engages temporary manual mode.
- Sport: The shift pattern is calibrated for more aggressing driving, including first-gear starts for maximum performance. The shift feel is also more aggressive, with a performance algorithm that holds the transmission in lower gears during aggressive driving.
- Manual: Here, the 6L90 offers the driver true manual control, with no automatic up shifts, and staged upshifts for incredibly fast shifts and maximum performance.

Other track-ready features of the ZL1 include:

- An engine-oil cooler, identical to the system on the Corvette ZR1. The integral liquid-to-liquid system is so effective that both the manual and automatic transmissions are deemed to be fully track-capable with the standard factory-installed cooling package.
- A rear-differential cooler, which pumps transmission fluid to a heat exchanger, reduces temperatures in the differential by more than 100 F.
- A high-performance fuel system delivers fuel to the LSA engine under any performance driving condition. For example, the system features additional fuel pickups on the primary side, and the secondary fuel pickup is moved outboard for continuous fuel access during high-g cornering under low fuel conditions.

Magnetic Ride Control 3.0 adjusts damping 1,000 times per second

The Camaro ZL1 will feature the third-generation of Magnetic Ride Control (MRC).

MRC employs valve-less damping and Magneto-Rheological (MR) fluid technology. MR fluid is a suspension of iron particles in a synthetic fluid. When the system is activated, the particles are magnetized and aligned into fibrous structures, changing flow resistance. By controlling the current to an electromagnetic coil inside the piston of the damper, the system varies the suspension firmness to match the road and driving conditions.

“Traditional suspension systems at some point compromise ride quality for road-holding grip and body control,” said Oppenheiser. “With Magnetic Ride Control, we can offer customers the best of both worlds: A comfortable ride that makes the ZL1 appropriate as a daily driver and the incredibly precise body control that makes the ZL1 so enjoyable on the track.”

For the third-generation, MRC uses new twin-wire/dual-coil dampers at all four corners. The smaller dual-coil system – with one coil at either end of the damper – replaces the larger single-core design of the previous generation.

The new design allows even more precise control of the electrical current (and magnetic flux), allowing greater range between the softest setting for ride comfort and the firmest setting for track driving. The new dual-coil design also enables faster response, with damping levels now adjusted up to 1,000 times per second – about one adjustment per inch of vehicle travel at 60 mph – making the system exceptionally responsive to changing driving and road conditions.

There are three settings for MRC in the ZL1: Tour, Sport, and Track.

Exclusive Performance Traction Management for the race course, and the drag strip

The Camaro ZL1 will also offer Performance Traction Management (PTM) as standard equipment, which is exclusive to General Motors. First introduced on the Corvette ZR1, PTM is an advanced system that integrates magnetic ride control, launch control, traction control and electronic stability control, to enhance performance on the racetrack and drag strip.

For example, the launch control feature (manual transmission only) automatically modulates engine torque for the best possible acceleration without excessive wheel spin. When the driver pushes the throttle to the floor, the system holds a predetermined engine speed until the driver releases the clutch. Then, the system modulates engine torque 100 times per second to maximize the available traction. The system is capable of approaching a skilled driver’s best effort and repeats it consistently.

Similarly, on a road course, the driver can apply full throttle when exiting a corner and PTM will automatically manage acceleration dynamics to maximize exit speed based on available traction.

Five PTM performance levels or modes are available to accommodate the given ambient and track conditions, driver experience/vehicle familiarity and driver comfort levels. They include:

- **Mode 1 –** Traction control set for wet conditions, with stability control on and Magnetic Ride Control set on Tour.
- **Mode 2 –** Traction control set for dry conditions, with stability control on and Magnetic Ride Control set on Tour.
- **Mode 3 –** Traction control set on Sport 1, with stability control on and Magnetic Ride Control set on Sport.
- **Mode 4 –** Traction control set on Sport 2, with stability control off and Magnetic Ride Control set on Sport.
- **Mode 5 –** Traction control set on Race, with stability control off and Magnetic Ride Control set on Track. Launch control tuned for VHT-prepped drag strips.

“Like the Magnetic Ride Control, the Performance Traction Management system improves the ZL1 experience as a daily driver and on the track,” said Oppenheiser. “By offering five distinct

modes of traction management, the driver can select what's best for them based on their experience and the driving conditions. As a result, novice drivers will find the ZL1 is very enjoyable to drive, while expert drivers will find PTM supplements their driving skill without interfering with their intentions."

About Chevrolet

Chevrolet is a global automotive brand, with annual sales of about 3.5 million vehicles in more than 130 countries. Chevrolet provides consumers with fuel-efficient, safe and reliable vehicles that deliver high quality, expressive design, spirited performance and value. In the U.S., the Chevrolet portfolio includes: iconic performance cars, such as Corvette and Camaro; dependable, long lasting pickups and SUVs, such as Silverado and Suburban; and award-winning passenger cars and crossovers, such as Malibu, Equinox and Traverse. Chevrolet also offers "gas-friendly to gas-free" solutions including the Cruze Eco and Volt, both arriving in late 2010. Cruze Eco will offer 42 mpg highway while the Chevrolet Volt will offer up to 40 miles of electric, gas-free driving and an additional 300 miles of extended range (based on GM testing; official EPA estimates not yet available). Most new Chevrolet models offer OnStar safety, security, and convenience technologies including OnStar Hands-Free Calling, Automatic Crash Response, and Stolen Vehicle Slowdown. More information regarding Chevrolet models, fuel solutions, and OnStar availability can be found at www.chevrolet.com.

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CAMARO ZL1 PRELIMINARY SPECIFICATIONS

Overview

Body style / driveline:	four-passenger, front-engine, rear-drive coupe
Construction:	unitized body frame, one- and two-sided galvanized steel
EPA vehicle class:	coupe
Manufacturing location:	Oshawa, Ontario, Canada
Key competitors:	Ford Mustang Shelby GT500

Engine

Type:	**6.2L Gen IV V-8 Small Block**
Application:	2012 Chevrolet Camaro ZL1
Displacement:	6162 cc (376 ci)
Compression ratio:	9.1:1
Valve configuration:	Overhead valves (two valves per cylinder)
Valve lifters:	Hydraulic roller
Firing order:	1 - 8 - 7 - 2 - 6 - 5 - 4 - 3
Bore x stroke:	103.25 x 92 mm
Fuel system:	sequential fuel injection
Fuel type:	premium required
Maximum engine speed (rpm):	6200
Emissions controls:	catalytic converter three-way catalyst positive crankcase ventilation
Horsepower: (hp / kW)	580 (427) @ 6000 SAE certified
Torque: (lb-ft / Nm)	556 (754) @ 4200 SAE certified
Block:	cast aluminum
Cylinder heads:	A356-T6 rotocast cast aluminum
Intake manifold:	cast aluminum
Exhaust manifolds:	cast stainless steel
Main bearing caps:	nodular Iron
Crankshaft:	forged steel
Camshaft:	hollow steel
Connecting rods:	forged powder metal
Additional features:	1.9 L/rev supercharger integrated single coolant to air intercooler piston oil spray cooling direct mount ignition coils

Transmissions

	Tremec TR6060 six-speed manual
Gear ratios (:1):	
First:	2.66
Second:	1.78
Third:	1.30
Fourth:	1.00
Fifth:	0.80
Sixth:	0.63
Reverse:	2.90
Final drive ratio:	3.73

	HydraMatic 6L90 six-speed automatic
Gear ratios (:1):	
First:	4.027
Second:	2.364
Third:	1.532
Fourth:	1.152
Fifth:	0.852
Sixth:	0.667
Reverse:	3.064
Final drive ratio:	3.23

Chassis / Suspension

Front:	double-ball-joint, multi-link strut; direct-acting stabilizer bar; progressive-rate coil springs; with Magnetic Ride Control
Rear:	4.5-link independent; progressive-rate coil springs over shocks; stabilizer bar; with Magnetic Ride Control
Steering type:	electric power steering with variable-ratio, variable-effort rack-and-pinion
Steering ratio:	16.1:1
Steering wheel turns, lock-to-lock:	2.5
Turning circle, curb-to-curb (ft / m):	37.7/11.5

Brakes

Type:	four-wheel disc w/ ABS; ventilated two-piece front and one-piece rear rotors; six-piston fixed Brembo aluminum front and four-piston rear calipers
Rotor diameter, front (in / mm):	14.6 / 370
Rotor diameter, rear (in / mm):	14.4 / 365
Rotor thickness, front (in / mm):	1.26 / 32
Rotor thickness, rear (in / mm):	1.1 / 28

Wheels / Tires

Wheel size and type:	20 x 10-inch aluminum (front) 20 x 11-inch aluminum (rear)
Tires:	P285/35ZR20 Gen-2 Goodyear Eagle F1 Supercar (front) P305/35ZR20 Gen-2 Goodyear Eagle F1 Supercar (rear)

Exterior dimensions

Wheelbase (in / mm):	112.3 / 2852
Overall length (in / mm):	190.4 / 4836
Overall width (in / mm):	75.5 / 1918
Overall height (in / mm):	54.2 / 1376
Track, front (in / mm):	63.7 / 1618
Track, rear (in / mm):	63.7 / 1618

Interior dimensions

Seating capacity (front / rear):	2 / 2
Headroom (in / mm):	front: 37.4 / 950 rear: 35.3 / 897
Legroom (in / mm):	front: 42.4 / 1077 rear: 29.9 / 757
Shoulder room (in / mm):	front: 56.9 / 1444 rear: 42.5 / 1080