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The new Audi A6 Avant: elegance and practicality

Summary

The new Audi A6 Avant: elegance and practicality

Audi is once again leading the way – the new A6 Avant is the trendsetter in the business class. With its lightweight body and many other innovations, the sporty and comfortable Avant will continue the success story of the model line in what is now the sixth generation.

Even at a glance, the elegant, 4.93 metre long Audi A6 Avant gives an impression of great agility. Its proportions are sporty and elegant, with the low roof line terminating in the broad D-pillars. On request, Audi supplies the headlights and rear lights as LEDs, which are fascinating both in visual and technological terms; the powerful adaptive light is available for the xenon plus headlights.

The new Audi A6 Avant sets standards with its low weight. With aluminium components comprising roughly 20 percent of the body, Audi – the global pioneer in lightweight construction – has raised the bar once again. Gross weight has been reduced by as much as 70 kilograms compared with the previous model. The A6 Avant 2.0 TFSI, for example, has a kerb weight of just 1,630 kilograms.

The interior is a sight to behold, with its sleek design, superb workmanship, generous array of equipment and exemplary ergonomics. The high-end options include a head-up display, ventilated front seats with a massage feature and an extensive selection of infotainment elements. Topping the range of infotainment options are the hard drive-based navigation system MMI navigation plus and the Bang & Olufsen Advanced Sound System.

The brand's high-tech assistance and safety systems lend even more confidence to driving. New in the Audi line is the parking system plus with a 360° camera: this features four tiny cameras recording images of the immediate vicinity of the vehicle. The surroundings are displayed on the large on-board monitor in different views.

The luggage compartment of the new A6 Avant has a capacity of 565 litres, which can be increased to 1,680 litres by folding down the rear seat backs. Audi also offers a wide range of other practical and refined features. They include the sensor-controlled, automatically opening tailgate: when the driver moves their foot underneath the rear bumper while standing behind, contactless

sensors cause the tailgate to open. This feature is especially convenient when the driver has both arms full of luggage.

Audi offers two engines with direct fuel injection for the new A6 Avant: a petrol and a TDI unit. These generate outputs of 132kW and 130kW respectively.

All of these power units combine power with pioneering efficiency – the fuel consumption has decreased by as much as 21 percent. The 2.0 TDI, for example, manages with only 5.1 litres of fuel per 100 km on average. All units employ the technologies from Audi's modular efficiency platform. Mated to both engines is the continuously variable multitronic transmission.

The elaborate chassis combines sporty dynamics and luxurious comfort. The Audi drive select dynamic system, together with the efficiency mode, is standard on both models; the new electromechanical power steering operates with outstanding efficiency. The ESP electronic stabilization program features an electronic limited slip differential that makes the car's handling even more precise. Options by special order from Audi include adaptive air suspension and dynamic steering.

The Audi A6 Avant is available for sale in Australia from June 2012.

Manufacturer List Price
(excluding dealer delivery and government statutory charges)

Audi A6 Avant 2.0 TFSI	$81,800
Audi A6 Avant 2.0 TDI	$82,900

At a glance

The new Audi A6 Avant

Body
- Length 4.93 metres, wheelbase 2.91 meters
- Innovative body concept, many components made of aluminium
- Xenon plus and LED headlights as well as adaptive light option
- Variable cargo space from 565 to 1,680 litres, automatically opening tailgate with sensor control as well as electric luggage compartment cover

Interior
- Spacious interior with comfortable character
- Generous standard equipment, wide array of options from the luxury class
- Head-up display, ambient lighting and front seats with ventilation and massage feature available on requests

Drivetrain
- A petrol and a TDI engine, both with direct injection
- 2.0 TDI with 130 kW, average fuel consumption only 5.1 litres per 100 km
- Continuously variable multitronic transmission

Chassis
- New electromechanical power steering
- Audi drive select dynamic system with new efficiency mode standard
- ESP with electronic limited slip differential
- Sporty suspension, powerful brakes, wheels up to 20 inches in diameter

Assistance and infotainment systems
- Advanced safety and assistance systems such as Audi pre sense, adaptive cruise control with stop & go function, Audi active lane assist, Audi side assist, night vision assistant, park assist system with 360° camera
- MMI navigation plus with MMI touch and 8-inch display
- Optional Bang & Olufsen Advanced Sound System with 15 speakers

Full version

Progressive technological expertise – The new Audi A6 Avant

Audi is launching the next generation of the A6 Avant, the most successful business-class station wagon in Europe. The new model presents the brand's full array of progressive technological expertise. Its lightweight body, large portions of which are made of aluminium, sets new standards, as does the broad selection of assistance and multimedia systems.

The new Audi A6 Avant comes to the market with two engines: a petrol and a TDI unit. Fuel consumption has been reduced by as much as 21 percent compared with the previous model. The most efficient engine is the 2.0 TDI, consuming only 5.1 litres of fuel per 100 km on average.

Audi also offers numerous high-end options for the drivetrain and the chassis. The luggage compartment has a capacity of up to 1,680 litres and offers a number of elegant features, including a power rear hatch that opens in response to a sensor signal.

Exterior design
The new Audi A6 Avant is distinctly sporty and sleek – with harmonious proportions, elegant styling and a low-lying glass cabin with broad D-pillars. Its exterior presents the aesthetics of the technology in all its details, in the sharp course of the lines and in the athletic tension of the surfaces. Good-looking station wagons have always gone by the name of Avant – ever since the first such model 34 years ago.

The exterior dimensions of the new A6 Avant are nearly identical to those of its predecessor. The wheelbase has grown by nearly seven centimetres, however, while the front overhang has been shortened by a good 8 centimetres.
The new Audi A6 Avant is 4.93 metres long and has a wheelbase of 2.91 metres. Its width measures 1.87 metres and its height 1.46 metres – the sportiest proportions among the competition.

The large, low-lying single-frame grille with the bevelled upper corners dominates the front view, and forms an organic part of the sculptured front end. Its grille features a high-gloss black paint finish, and the horizontal orientation of the lamellae underscores the breadth of the vehicle, as do the wide, low-lying air inlets.

The wedge-shaped headlights increasingly broaden towards the outside. The engine hood cuts into their upper edges, giving the new A6 Avant a resolute, energetic look. The bottom edges of the headlights form a wave-shaped contour.

Confident elegance: sides and rear
The profile of the new Audi A6 Avant also conveys an impression of confident elegance. The ratio of body panel surfaces to the windows is two-thirds to one-third – a typical Audi proportion. The roof line already begins to descend slightly behind the B-pillar, while the third side window is cut very low. The powerful D-pillars and the rear window are unusually flat – a classic characteristic of the Avant.

Sharp edges at the body embrace powerfully arched surfaces. The tornado line, the dominant design element of the A6 Avant, defines the proportions; as a pronounced shadow edge it lends strong shoulders to the body. The line begins at the headlights and sweeps in a slight arch over the fenders, the doors and the rear side parts to the rear lights. The dynamic line, which climbs upward significantly, lies above the side sills.

The glass cabin is accentuated by a high-gloss package with window capping strips made of anodized aluminium and black mouldings for the B-pillars. Wheels of 17 to 20 inches in diameter fill the tautly defined wheel arches. The exterior mirror housings contain LED turn signals, while the solid door handles represent dependable safety.

The fine play of the lines terminates in a three-dimensionally shaped rear section. In the lower part, where the license plate is mounted, the section springs back relative to the upper zone. Trapezoidal, split lamps emphasize the width. The matt black diffusor insert embraces the two round tailpipes of the exhaust system.

On request, the S line exterior package gives the A6 Avant an even sportier look. The bumpers and the diffusor insert are more powerfully accentuated; the diffusor, the front air inlet grilles and the centre front spoiler edge are painted grey. The tailpipes of the exhaust system are chrome-plated, while the fenders and the sills bear the S line lettering. The sill strips are in the same colour as the vehicle body, and a striking roof spoiler integrates the third brake light.

Audi offers a choice of 11 paint finishes for the A6 Avant. The solid colours are called Ibis White and Brilliant Black. The metallic colours are Aviator Blue, Dakota Gray, Ice Silver, Havana Black, Moonlight Blue, Oolong Gray and Quartz

Gray. The pearl effect colours Garnet Red and Phantom Black complete the line.

Art and prowess: the headlights
The headlights of the new A6 Avant present the engineers' prowess in the form of works of art – typically for the brand. Audi provides them in three versions. Intense halogen headlights are standard; on request xenon plus headlights and an LED version are available – a technology which puts the brand well ahead of the competition. For the halogen and xenon plus headlights a separate high-beam assistant is available.

The xenon plus headlights include a daytime running light strip consisting of LEDs; it is located at the bottom edge of the headlight, parallel to the wing – the large plastic moulding.

The new all-weather light, generated by the intelligent actuation of the light modules in the pointed wedge of the headlight, illuminates a range of 60 metres – four times farther than conventional fog lights, which it also exceeds in energy efficiency. The traditional installation location of the fog lights in the air inlets is occupied in the new A6 Avant by the radar sensors of the optional adaptive cruise control with stop & go function.

Audi also upgrades the xenon plus headlights with the optional adaptive light system, which always provides the appropriate lighting, whether driving in the city, on inter-urban roads or on the highway. The adaptive light includes a dynamic cornering light, a static turning light and variable headlight range control, which detects the light from other vehicles and built-up areas with a small video camera in the base of the interior mirror. By swivelling the light modules the system changes with gentle transitions between low beams and high beams, always affording the driver maximum illumination.

Top solution: the LED headlights
The top version in the new A6 Avant are the LED headlights. Their white light, created by the transitions of the electrons in the different layers of the semi-conductors, has a colour temperature of about 5,500 Kelvin, similar to daylight, which is very pleasant for the eyes at night.

The LED headlights are visually unmistakable, maintenance-free, long-lived and extremely energy-efficient. The low beams consume just 40 watts per unit, which is even less than with the xenon plus technology. Fans and heat sinks modulate headlight temperatures and prevent fogging.

A second, sleek wing structures the interior of the LED headlights. Beneath it are the four single-chip and five double-chip LEDs that generate the low beams. Above the wing are the three quadruple-chip LEDs for the high beams. A separate quadruple-chip LED is responsible for the cornering light.

The LED headlights also include an all-weather light, involving the interplay of several electronic and electromechanical components. In many areas Audi has replaced moving parts by intelligent actuation to achieve flexible illumination of the roadway. In contrast, the highway lighting employs step motors that raise the light/dark boundary from a speed of 110 km/h to extend the light cone from 70 to 120 metres. The integrated high-beam assistant automatically switches between the low and high beams.

Along the bottom edges of the headlights the daytime running lights and the indicator lights have been placed in a strip following the large wing. A superposed plastic component provides the thick wall technology that makes them appear as homogeneous strips of light. The daytime running lights are generated by 24 white light-emitting diodes. Blue LEDs – which emit yellow light due to a technical sleight of hand – are responsible for the turn signal lights.

Audi offers LED tail lights in combination with the xenon plus and LED headlights, to create a three-dimensional light pattern. 90 LEDs generate the homogeneous tail lights. Owing to the upstream diffused optics, the tail lights appear as optically consistent, wide arcs. The brake light, centrally placed in the lamps, employs 42 red LEDs. The turn signal light, constructed from 46 yellow LEDs, runs as a band along the upper edge of the lights. The rear fog light as well as the license plant light also uses LEDs. Bulbs generate the reversing lights.

Body

The body of the new Audi A6 Avant leads the competition. The steel/aluminium composite design brings about 15 percent less weight to the scales than a comparable solid-steel design. The body impressively meets all criteria – rigidity, vibration and collision characteristics, aerodynamics and aero-acoustics. Ground-breaking new design methods and materials make these qualities possible.

Lightweight design: high aluminium content

About 20 percent of the body is made of aluminium, a material with which Audi has experience reaching back to 1994 – when the first A8 rolled off the assembly line – that no other carmaker can match. The high content of this

lightweight metal reduces the weight of the body by about 30 kilograms compared with the predecessor model.

The new composite construction concept with the many aluminium parts in the front end improves the distribution of the axle loads. Above all, however, it provides the basis for the systematic lightweight design pursued by Audi in the A6 Avant – depending on the version, the new Avant weighs up to 70 kilograms less than its predecessor.

The lightweight body has significant secondary effects – in the case of the suspension and brakes, for example, engineers were able to save many kilograms. The unladen Audi A6 Avant 2.0 TFSI (without the driver) weighs in at a mere 1,630 kilograms. Audi, the global pioneer in lightweight design, has reversed the spiralling trend in weight once again.

The rear longitudinal member of the A6 Avant is a steel section with welded partitions. The A8 uses an internally ribbed aluminium casting in this area. The properties and appearance of the two components are similar. The steel side sills of the A6 Avant are manufactured in a rolling process and integrated into the structure in a manner similar to that used for the aluminium extruded sections in the A8.

In the A6 Avant, a node assembled from high-strength steel parts serves as the connection between the A-pillar, the side sill and the front cross member. The A8 uses two aluminium die-cast parts here that perform essentially the same functions. As with the luxury sedan, the strut mounts in the front of the A6 Avant are complex, particularly high-precision aluminium castings. The links of the front axle are bolted directly to them; the bearing pedestals commonly used in the past have been eliminated.

The cross members in the engine compartment of the new A6 Avant are also aluminium sections, as are the cross members behind the front and rear bumpers. The integral subframe behind the instrument panel, the cross member in the luggage compartment, the front fenders, the doors and the trunk lid are all aluminium sheet metal, just like the engine hood. A double-lock system keeps these components secure.

The aluminium doors have a double-shell design. For them and the tailgate Audi uses novel diode lasers in the body construction. They operate extremely fast, and consume much less energy than the previously used solid body lasers, reducing CO2 emissions by about 3,000 tons a year. Twelve of these new lasers make around 50 weld seams per door; a welding group is finished in 75 seconds.

The ultra-precise connection between the side wall frame and the roof, known as the invisible joint, is formed through laser soldering, again involving diode lasers. Audi has invested around 700 million euros in production at the Neckarsulm site, where the new A6 Avant is rolling off the assembly line.

Ultra-strong and lightweight: hot-stamped steel
Another outstanding feature of the new Audi A6 Avant's body is its high-end steel of different strength classes. At the top is hot-stamped steel – heated in a continuous furnace to nearly 1,000°C and directly afterwards shaped in a water-cooled compression mould at about 200°C. This extreme jump in temperature creates an iron-carbon structure attaining extreme tensile strength. The hot-stamped components require relatively thin wall thickness and are accordingly lightweight.

The hot-stamped steel lends the highest strength to many areas of the passenger compartment – to the transition between the front end and the passenger cell, to the A-pillars and the curved roof, to the centre tunnel, to the side sills and to the transition between the sills and the rear section; in the floor section the steel is used for the cross struts. The B-pillars also consist of this high-end steel; in the lower part they are more flexible than above, since the energy in a side collision has to be absorbed here. This variation is brought about by partly tempering the sheet blanks.

In many zones, such as the cross bracing of the bulkhead, Audi employs tailored blanks – sheets of varying thickness that are thicker and stronger in the areas subject to greater stress. In some cases they are rolled to varying thickness – another high-end method.

Comprehensive package: passive safety
In the new A6 Avant, Audi makes no compromises when it comes to safety. In developing the concept, the brand used, among other things, a knowledge base built up by Audi itself: The AARU (Audi Accident Research Unit) investigates real-world accidents and analyzes the relevant databases. Up to the start of production of the new Avant, a large part of the work occurred on computers – virtual prototypes and components completed more than 4,000 crash simulations.

In a frontal collision, the front cross-member directs the forces to the two longitudinal members, which undergo defined deformation to dissipate these forces. The frame element for the engine and front axle diverts forces and torque in a controlled manner into the strong floor and tunnel structure of the

occupant cell. In the footwell, high-strength areas and special foam protect the legs and feet. If necessary, the pedals, made of lightweight materials, are uncoupled from the bulkhead. The steering column absorbs energy without moving into the interior.

Even in a side collision the occupant cell offers the best protection thanks to its hot-stamped steel components. The doors act as stress distributors; their integrated impact absorbers rest on stable surfaces at the pillars. In a rear-end collision the bumper cross members transmit the stress to the large-sized longitudinal member, made of high-strength steel. The tank remains outside the deformation zone in nearly all cases.

Graduated action: the adaptive restraint system

The adaptive restraint system stands guard in the interior of the A6 Avant. It is networked with the Audi pre sense safety system and also uses its own acceleration and pressure sensors. The system manages the cooperation between the front airbags and the belt tension limiters depending on how close to the instrument panel the driver and the front passenger are sitting. The airbags can quickly blow down a portion of their air volume to catch the head and chest more gently; the belt tension limiters can be switched between two stages.

Side airbags in the backrests of the front seats and optionally in the outside rear seats for side collisions are ready in the event of a side impact collision. The seats are very rigid in the transverse directions. The head airbag system opens like a curtain from the A-pillar to the C-pillar. The integrated Audi head restraint system reduces the risk of whiplash injury in rear-end collisions. Isofix fastening clamps for child seats are standard in the rear and optionally available for the front passenger seat.

The new Audi A6 Avant meets all legal requirements for the protection of pedestrians in the event of a collision. The energy-absorbing bumper covering, foam behind the bumper and a bonnet that keeps a large distance from the hard parts play the most important roles here.

Minor collisions occur without major financial consequences. The crash boxes made of aluminium extruded sections upstream from the longitudinal members prevent severe damage to the structure. The two optional radar sensors move together with the bumper covering.

Outstanding: the rigidity and vibration comfort

The body of the new Audi A6 Avant is rigid and firm to a high extent. The two torsion rings in the structure – at the B-pillars and around the cutout for the

tailgate – make important contributions here. The A6 Avant achieves excellent data in both static and dynamic torsional rigidity.

The high general rigidity together with local optimizations, defined among other things by state-of-the-art simulation methods and the Audi comfort test bench, a unique developmental tool, lead to excellent vibration comfort and to a compact impression of the body. The elaborate hydraulic damping of the axle mounts also greatly contributes to the vibration comfort.

The two engine mounts and the transmission mounts in the centre tunnel are also hydraulically dampened. During idling, their soft characteristics keep disturbing noises and vibrations away from the interior; during driving the damping is increased, in order to suppress engine vibrations.

Like the luxury class: noise comfort
The new Audi A6 Avant conveys the superior acoustic quietness of a luxury-class vehicle. The noise comfort arises from the interplay of numerous progressive aspects, such as the reduced number of bushings in the bulkhead and their consistent sealing.

In many sheet metal areas Audi uses sprayed-on insulating compounds, which are lighter in weight and more effective than the bitumen matting used previously. High-quality non-woven microfiber fabric with insulating properties is used throughout the interior. The underbody panelling also absorbs noise. Even the wheel arch liners integrate special non-woven microfiber fabric.
The glazing of the new A6 Avant also reduces interior noise. Even the standard version – a windshield with a special noise-insulating safety film – has a good insulating effect.

Insulated-acoustic glass side windows are also optionally available from Audi. They also have an infrared reflecting coating that reduces heating of the interior from direct sunlight – a unique selling point in the competition. Darkened privacy glazing is alternatively available. The combination of these glazing variants, together with the sealing concept of the doors with the three sealing lines, attains a wind noise level that is competitive even in the luxury class.

Drag coefficient of 0.30: the aerodynamics
The new Audi A6 Avant easily glides through the air. The basic version's drag coefficient is 0.30, the frontal area measures 2.31 m^2 – the total drag, the product of both factors, is again lower than the predecessor's, itself a very good value.

The A6 Avant hugs the road even at high speeds. The lift is balanced and the lift coefficients at the front and rear axles are low. With the exception of the transmission tunnel, the underbody, the wheels and the wheel arches are fully panelled; the large cover made of fibreglass-reinforced plastic protects the sheet metal and the engine against salt, water and stone chipping. Wheel spoilers at both axles as well as additional spoiler strips conduct the flow with little loss across the underbody. The latter is aerodynamically optimized and reduces the drag of the A6 Avant by about ten percent.

An optimal and low-loss flow through the engine compartment, which in the worst case can constitute up to 15 percent of the total drag, had high priority in the aerodynamic development. For the air flowing into the single frame grille to reach the radiator without leakage loss, the radiator surrounding has been elaborately sealed off. The plate package and the impellers of the fans are optimized for low flow resistance. The continuously variable brushless electric fan operates at high efficiency.

In developing the A6 Avant, Audi paid great attention to sustainability. The goal was not only to reduce the emissions produced during driving, but also to consider the entire vehicle life-cycle from an environmental perspective. The environmental balance sheet shows that all emissions relevant to the greenhouse effect have significantly decreased relative to the model's predecessor.

While the use of aluminium in the production of the vehicle generates somewhat higher CO_2 emissions, this increase is more than compensated by the lower fuel consumption, also due to the lower weight. The residual aluminium from production from the Audi press shop re-enters the material cycle correctly sorted and without loss in quality – this too reduces CO_2 emissions.

When the vehicle reaches the end of its life, all of the aluminium components can be recycled using just a small amount of energy. The Neckarsulm plant, where the A6 Avant is running off the assembly line, consumes comparatively little energy because of the large-scale utilization of district heating from a neighbouring power plant.

Interior

A sleek, light design, combined with outstanding comfort, intuitive ergonomics and highly networked intelligence: The new Audi A6 Avant also documents in the interior its role as a leader in the business class.

The styling of the interior continues the sporty elegance of the exterior. Its dominant element is the large inlay, the wrap-around. Beginning at the driver's door, it runs in large arches under the base of the windshield to the front passenger's door. The instrument panel with its large application surface rounds off the concept of the taut lines with an elegant sweep.

Although the seats are mounted at a sporty, low level, most drivers are surprised by the low-lying engine hood in its entirety – a view reinforcing the impression of great distances and freedom. The broad, asymmetrically cut centre console is oriented toward the driver.

Uncompromising: the build quality
Quality knows no compromises – this Audi maxim becomes tangible in the interior of the new Audi A6 Avant. All materials have been selected and processed with the utmost care. The switches can be operated without play, precisely and easily; the joints are uniform and narrow, in some areas only a few tenths of a millimetre wide.

The rotary controls with their aluminium-look finish are small works of art, while the pushbuttons catch the eye with their black soft-touch finish.
The shifting concept of the automatic operation and the start-stop button feature subtle red backlighting, and the door sills have aluminium inlays. The upper part of the instrument panel is covered with soft, lined material with a leather look. Heavily used components with the piano finish are coated with a novel, UV-cured topcoat that makes them extremely resistant to scratching.

Audi offers a range of decorative elements, colours and coverings for the A6 Avant. They include the standard Milano leather, along with a high-quality Valcona leather option. The paint only lightly covers the skin structure to let the material breathe. An Alcantara/leather combination presents another fine alternative. A leather package for the centre console, the door armrests and pull handles completes the line.

The seat coverings are available in black, goa beige, nougat brown, titanium gray and velvet beige, the headlining in black, silver and beige. Black, grey, brown and beige tones are available for the interior. Micrometallic platinum inlays are standard, with aluminium trigon mouldings as an alternative. As wood veneers Audi offers brown, open-pore ash grain and dark-brown walnut root; a particularly sophisticated option are the piano finish black inlays.

Still more exclusive is Beaufort wood, a veneer made of layered oak. Using a technique specially developed by Audi, the wood is cut from a block containing

extremely thin layers alternating in a finely tuned way between untreated and dark-stained wood. Special processing finally provides a fine finish.

The S line sport package immerses the interior in a cool black. The sport seats are covered with Valcona leather or a combination of perforated Alcantara and leather. The covers are black as are the carpeting, the instrument panel and the headlining, with the stitching adding visual touches. The inlays are matt brushed aluminium; S line lettering shines on the fenders and the sills. The steering wheel is specially designed, with the selector lever knob set apart by perforated embossing.

Aesthetic overall presentation: the interior lighting
Audi provides the new A6 Avant with a light package on request. The package comprises exterior courtesy lighting, active door reflectors and white LEDs for the interior. The ambient lighting, also optional, operates in many areas with light guides, providing further effects at the sills, the door pockets and rear reading lamps. Dramatic lighting makes the console on the centre tunnel appear to float.

When darkness falls, the ambient lighting, whose brightness can be set via the MMI, makes the interior seem bigger and wider. When the A6 Avant is unlocked, the light spreads through its interior like a wave, starting at the driver's seat. When a door is opened, the light is concentrated on the corresponding seat.

Intuitively coherent: the operation
The new Audi A6 Avant offers more than twice as many functions as its predecessor – and yet operation is intuitively understandable in the typically Audi way. The large, clearly marked round instruments and the centre display lie underneath a curved dome; they can be read at a glance and are vividly detailed.

The needles point to six o'clock when in the zero position and run up briefly and fall back down when the car is started. Additional indicators inform the driver about the tank contents and the coolant temperature.

As of the MMI radio plus equipment level, the new Audi A6 Avant has the driver information system (DIS) on board, with a 7-inch coloured monitor, depending on the version. The DIS consolidates all important information and settings in a menu structure using a main field and two additional information strips. The driver can quickly read off the information without having to look away from the road.

The DIS includes the efficiency program, indicating how individual consumers, such as the rear window heater, are contributing to fuel consumption.
It also includes an enlarged gear-change indicator and gives tips for efficient shifting – a useful aid given that the individual driving style determines about 30 percent of the fuel consumption.

The DIS is operated at the standard leather multifunction steering wheel; the driver also controls the telephone and audio devices at the improved keyboard with its two new rocker switches. Audi offers a whole series of steering wheel versions – with three or four spokes, shift paddles for the automatic transmission, a heated rim and electric adjustment together with easy seat entry. All steering wheels have an inside frame made of ultra-light magnesium materials.

On the centre console are located different secondary switches, the slot for the CD or DVD player and the memory card slots. The lower section contains the control unit for the automatic air conditioning; its rotary controls are surrounded by red and blue LEDs.

Efficient and subtle: deluxe automatic air conditioning
The deluxe automatic air conditioning in the new Audi A6 Avant allows practically draft-free indirect ventilation. It considers the position of the sun, and a moisture sensor helps to avoid fogged windows. The system operates quietly, discreetly and ultra-efficiently. Compared with the previous model's air conditioning, the new system saves about 0.2 litres of fuel per 100 km on average at higher output.

On request, Audi provides the deluxe automatic air conditioning with four-zone control, with a separate control panel for the rear passengers. For the entire interior three climatic styles are available – gentle, medium and intensive. For winter a fourth variant is available that heats the footwell with particular intensity. A residual heat function uses the heat of the engine when the Avant is parked.

Audi also optionally provides a programmable auxiliary heater with a new operating concept. The customer need only select the time at which the heater is to start – the rest is done by the control unit. Its intelligent strategy lowers the power and fuel consumption by 30 to 50 percent.

The centre tunnel console of the new Audi A6 Avant contains further controls. The standard start-stop button replaces the ignition lock, and is supplemented by the convenience key. The button for the electromechanical parking brake

and the terminal of the MMI (Multi Media Interface) operating system are located on the centre tunnel console.

Intelligent and versatile: the MMI operating system
The MMI terminal presents a new stage in development. In its full version, MMI navigation plus, five hard keys open the main areas of Navigation, Telephone, Radio, Media und Car. Another two hard keys provide the menu overview and return.

The central rotary pushbutton and the four adjacent soft keys are used to navigate through the menus. A separate control island including a rotary volume dial controls the audio section. Another panel includes the touchpad, which can be changed to a surface with six radio station buttons.

The central on-board monitor of the MMI Navigation plus system has a standard diagonal of 8 inches, and is enclosed by an ultra-glossy black frame. When not used, the monitor remains recessed in the instrument panel – only the chrome-plated upper edge is visible, acting like a decorative trim. When the ignition is switched on, the monitor first moves forward and then upwards, in a gentle motion with graduated speeds.

As with the DIS, the MMI display area is divided into three zones, while the menu control system follows a clear logic. The new selection menus (Wizards) are especially classy with their circularly arranged icons. Elegant, three-dimensional graphics and computer animations display the menu hierarchy in a catchy way.

Everything important at a glance: the head-up display
On request, Audi provides the A6 Avant with a head-up display, which projects the most important data onto the windshield in the form of symbols and digits. The display takes the form of a virtual image inside a window measuring 262 x 87 millimetres. It appears to hover above the engine compartment lid, about 2.3 metres in front of the driver, directly in the primary field of vision. The height of the picture window can be adjusted.

The driver need not look away from the road in order to register the information; eyes already accustomed to long-range vision do not need to re-adjust. It takes only about half the time to glance at the head-up display that it does to read the display in the instrument cluster – an important safety advantage especially at higher speeds.

Drivers can select what information they wish to have shown in the head-up display via the MMI – for instance the speed, the navigation symbols, the lists

of infotainment systems and the displays for the assistance systems. The speed limit display and the night vision assistant also use the system.

Audi is the first automotive manufacturer in the world to offer a full-colour head-up display with TFT screen technology. 15 bluish-white LEDs intensively back-light the TFT monitor on which the images are generated. A sensor in the base of the interior mirror adjusts the display to the ambient brightness; the driver can also adjust it at any time.

The LEDs and all other components have an extremely low energy requirement. All components are designed so as easily to withstand the temperatures occurring in the head-up display. The system operates without any active cooling – another factor that boosts efficiency.

The windshield on which the projection occurs enlarges the picture. Two arched correction mirrors in the light path generate a uniform image. This new technology keeps the installation space especially small and leaves designers full freedom in designing the windshield. To avoid double images, the windshield and its safety film have a slightly tapered profile.

In producing the windshield tiny deviations from the ideal surface cannot be avoided. While lying in the range of just a hundredth of a millimetre, they would still lead to a slightly non-uniform picture in the head-up display. Audi avoids this effect: In production of the A6 Avant the display is precisely calibrated to the windshield in each vehicle.

Like the luxury class: the seats
The new A6 Avant offers space aplenty. The large doors with their convenient arresters allow comfortable entry for all passengers; Audi optionally supplies electric power-assisted closing. Large adults also have plenty of room for their heads, arms, knees and feet at all seats.

Compared with the predecessor, the front headroom, the interior length and the shoulder-width have slightly increased; the front seats have been set apart by 20 millimetres.

The rear bench headrests can be lowered especially far so as not to impair the view to the rear. The optional rear window roller blind shades off the window almost completely. The sun blinds for the rear side windows protect the rear passengers from direct sunlight.

The standard front seats of the Audi A6 Avant are electrically adjustable with electric 4-way lumbar support and a memory function for the driver’s seat. The

seats have been thoroughly redesigned, and their surfaces ergonomically shaped. The innovative foam in the seats becomes variously soft and hard depending on the zone. A seat heater is also available for the front seats or for four seats.

A highlight of the A6 Avant line are the optional front comfort seats, with electric adjustment and a memory function that also includes the outside mirrors. The backrests and side bolsters plus the lumbar support can be adjusted pneumatically.

On request, Audi will refine the comfort seats with ventilation for the seat surfaces and backrest, employing a novel and especially effective suction technique; the four fans operate at three speeds. Also available is a massage function with ten air chambers, five programs and four intensities – a real treat for the occupant's back.

Only a few switches are needed to operate the seats. All primary adjustments are made using switches that mirror the shape of the seat. A multifunction switch controls the secondary functions, such as adjusting the side bolsters or the massage function, with the MMI monitor showing each step.

The new Audi A6 Avant offers many spacious and practical stowage areas. The locking glove compartment is very large; the front door pockets can accommodate bottles of up to 1 litre. Two other cupholders are located on the centre tunnel. Here, an optional armrest and stowage compartment with a continuously variable tilt can also be found.

In the rear there is an additional, folding armrest with a small storage compartment. A 12 V socket, drawers under the front seats and nets behind their backrests complete the range of storage spaces. Audi also provides a storage package with two cupholders in the rear centre armrest, two sockets in the rear and a net for the luggage compartment.

Luggage compartment

The new Audi A6 Avant is a versatile companion for its sporty and active owner. Its large, spacious luggage compartment, lined with fine carpeting, has a capacity of 565 litres. The asymmetrically split rear seat backrests can be conveniently folded down using the levers in the walls of the luggage compartment; spring-tensioned, they collapse on the seat cushions. The capacity then expands to 1,680 litres.

The large luggage compartment can be superbly used, thanks to the flat side walls allowing a load-through width of 105 centimetres and the low loading edge, lying at a height of 63 centimetres and practically flush with the loading floor. The loading length is 118 centimetres, with 75 centimetres added when the backrests are folded down. Bag hooks, side fastening belts, a tray for dirty items under the loading floor and roof rails are standard, as are four large tie-down rings that can be moved on rails at the edges of the loading floor as required.

Audi offers many practical and intelligent details as options – a load-through hatch for the rear seats with a removable ski bag, a reversible mat or a load-securing kit for flexibly dividing the space by means of a telescopic rod and a fastening belt. The standard luggage compartment partitioning net is contained in its own cassette and can be fastened in two positions.

In addition, an electric drive for the tailgate is standard; its opening angle can be set individually. Its perfect companion is the new electric luggage compartment cover – guided by rails into the D-pillar panelling, it follows the tailgate.

Sensor control for the automatically opening tailgate is also provided – a wholly new feature in the vehicle's class. A sensor in the rear detects the driver by means of the vehicle key he or she is carrying.

When the driver stands behind the car and moves their foot beneath the bumper, similar to a kicking motion, a proximity sensor causes the tailgate to open. Should it encounter any resistance, it stops automatically. This feature is especially convenient when the driver has both arms full of luggage.

The accessories program includes many features for transporting sports and recreational equipment, from roof racks to the partition grille. The new A6 Avant is a powerful towing vehicle, with a rated towing capacity of 1,800 kilograms.

Multimedia systems

The new A6 Avant sets new standards in its class in many areas – including the technological fields of navigation and infotainment. Audi has a modular system of elements in store. At the top of the line is MMI touch with its pioneering touchpad control.

Multimedia centre: MMI navigation plus
The top model in the infotainment line is MMI navigation plus with MMI touch, consisting of two blocks. The radio unit combines the functions of tuner and sound system. Two antennas ensure reliable radio reception, while digital signal processing further improves FM reception.

The main unit integrates other components, including a DVD drive (that also reads music in mp3, WMA and ACC formats), two card readers and a 60 GB hard drive with the navigation data. A third of its capacity is reserved as memory for telephone and music data. Two processors ensure that all applications run quickly, simultaneously and smoothly.

Sound is produced via the Audi sound system. A six-channel receiver pumps 180 watts of power to ten speakers, including a subwoofer and a centre speaker. The Audi music interface conveniently integrates a mobile player or an iPhone in the audio system.

A graphics processor from NVIDIA, the market leader, generates the three-dimensional images in top quality. The map is a high-resolution 3D model with points of interest in many cities recreated in great detail.

The driver can choose between route guidance using the classic arrows or a new, animated display rich with detailed information. The central on-board monitor has a diagonal of 8 instead of 6.5 inches. Thanks to its high resolution of 800 x 480 pixels, it delivers superbly sharp images in brilliant colour.

Touchpad control: MMI touch
MMI navigation plus comes with a groundbreaking innovation from Audi: MMI touch with black panel technology. The driver enters a destination or the telephone number by drawing the letters and numbers – even using characters from Asian languages – on the touch-sensitive control panel with a finger. The system provides acoustic feedback after each character so that the driver's eyes can stay on the road. With MMI touch you can also move the map around and scroll through lists. The push of a button transforms the pad into a control panel containing six freely selectable radio stations.

The touchpad consists of the sensor module and the computer placed underneath – its processor detects the characters drawn by the driver and relays them to the MMI system. The sensor module constitutes the touch-sensitive film incorporating numerous conductor tracks, and the top shell; white high-performance LEDs illuminate it from below. A special coating ensures that the shell withstands 600,000 entries at no detriment to the impression it conveys of fine quality.

At the same time, MMI navigation plus in the new Audi A6 Avant also offers the customary control level with its large rotary pushbutton. Finally, the system also features speech control that allows the city and the street to be spelled out in a spoken command. The voice control also discloses the telephone and music data on the hard drive.

Other optional elements complete the infotainment line. They include a CD/DVD changer in the glove compartment, a dual tuner for digital radio reception (digital audio broadcasting, or DAB) and a digital TV tuner. The Bluetooth cell phone preparation includes a hands-free unit, operated via the MMI, the voice control or the multifunction steering wheel.

An AV adapter for video and picture sources is due to follow a bit later. USB adapters make the connections to external terminals. A rear seat entertainment system with two 10-inch monitors is also available as a special option.

The ultimate in sound: the sound systems
Audi provides the surround sound system from Bose on request. Its 12-channel amplifier with over 600 watts of power controls 14 speakers together with a subwoofer and centre speaker to provide a lush, lifelike and precise sound. Combined with MMI navigation plus and thanks to a special algorithm, the Bose system also outputs stereo signals in 5.1 sound.

The top version, the Advanced Sound System from Bang & Olufsen, ups the ante with two amplifiers and 1,300 watts of power. The system from the Danish specialists will impress even discerning hi-fi aficionados with a finely differentiated, broad frequency spectrum, a powerful bass, transparent middle tones and crystal-clear treble tones.

The company’s own up-mix algorithm divides stereo signals among up to seven channels and can simulate the sound reflections of a concert hall. The 900 watt amplifier for the bass speakers employs the manufacturer’s ICE Power Technology. Especially energy-efficient with this technology, the amplifier is also compact and lightweight.

The Advanced Sound System includes 14 active speakers with polished aluminium mouldings. The boxes in the front doors are closed, emitting no frequencies through the sheet metal surfaces. The instrument panel contains two elegant acoustic lenses for the high frequencies; they extend upwards when the system is started.

Driver assistance systems

On request, Audi provides the new A6 Avant with a wide range of driver assistance systems. They are tightly networked with one another and with other systems in the vehicle, making them extremely versatile, intelligent and efficient. Especially over long distances they make driving even more relaxed, confident and pleasant.

The electronic network in the new A6 Avant is so complex that it has received a whole new architecture: the FlexRay bus system networks many control units from driver assistance and suspension, and significantly speeds up the data transfer between them.

The core: adaptive cruise control with stop & go function

The central driver assistance system in the new A6 Avant is the adaptive cruise control (ACC) with stop & go function and Audi pre sense front. The high-end radar cruise control system regulates the speed and the distance to the vehicle ahead by accelerating and braking in a speed range from zero to 250 km/h, and brakes automatically within certain limits.

The driver can use the MMI operating system to determine how comfortable or sporty travel should be – three levels and four distance stages are available. ACC stop & go is intensively networked in the vehicle, analysing the data from up to 26 other systems. The most important information comes from its own two long-range radar sensors, however. Located in the lower part of the front end, they operate in the frequency range between 76 and 77 GHz and cover an area of 250 metres in length with a total angle of aperture of 40 degrees. A small video camera mounted in the base of the interior mirror looks 60 metres ahead, also with an angle aperture of 40 degrees.

With this high level of information, the system can recognise complex scenarios and predictively support the driver. It also uses the predictive route data from the navigation system so that it can also reliably calculate the proper line on the highway even in curves.

Whether changing lanes, traveling on winding roads, passing or turning off, the ACC stop & go function resolves the situation as judiciously and confidently as an accomplished driver, making driving even more fluid and harmonious. Its range of application also includes motion through urban traffic, where the system acts especially comfortably, decelerating the A6 Avant to a stop. In subsequently automatically starting off again, the system also uses the signals

supplied by the ultrasound sensors of the Audi parking system located in the front bumper.

Complex safety system: Audi pre sense
The Audi pre sense safety system is available in a number of different versions in the new A6 Avant, and works closely together with a series of other systems. In the standard version, Audi pre sense basic, the system intervenes on detecting an unstable driving situation via the sensors of the ESP stabilization system. In this case, Audi pre sense makes sure that the front seat belts are electrically tautened and that the sunroof and the windows are closed down to a small gap.

Together with ACC stop & go, the new A6 Avant also has Audi pre sense front on board. From a speed of 30 km/h it helps the driver avoid threatening accidents or diminish their effects. In a critical situation the integrated Audi braking guard is active. It warns the driver first with an acoustic and then with a visual signal. Parallel to this, the brake system is prefilled and the shock absorbers of the optional adaptive air suspension are set to hard.

If the driver remains passive, a warning jolt – the brief activation of the brakes – is performed in the second stage. The seat belts are slightly tensioned at the same time. When the driver now steps on the pedal the hydraulic brake assist increases the braking power accordingly. Should the driver ignore the warning jolt, autonomous partial braking occurs, which decelerates the A6 Avant at 3 m/s2; the precondition is that the preceding vehicle is moving. Windows and the sunroof are closed, the adaptive brake light is activated and the seat belts are greatly tensioned.

If the A6 Avant is equipped with the full version of Audi pre sense – Audi pre sense plus as part of what is known as the assistance package – a third and a fourth stage follow in the event of an emergency. The system now increases the deceleration to 5 m/s² and tightens the belts completely. The last braking phase – the autonomous full brake application – occurs roughly half a second before an inevitable collision. The collision and its consequences are greatly reduced, for by the time the impact occurs the A6 Avant can reduce its speed by as much as 40 km/h.

Another Audi pre sense subfunction, Audi pre sense rear, is coupled with Audi side assist. If the system detects an imminent rear-end collision, it uses the adaptive brake light to warn the traffic behind, and initiates preventive protective measures if the situation turns critical.

Help when changing lanes: Audi side assist
Audi side assist including Audi pre sense rear is also activated at speeds above 30 km/h. Two radar sensors in the rear monitor the events behind the A6 Avant up to a distance of 70 metres. If a detected vehicle is assessed to be critical for a lane change, a yellow LED in the housing of the outside mirror lights up. If the driver still activates the turn signal to change lanes, the indicator becomes brighter and begins to flash quickly – a signal that is hard to miss.

Always in the lane: Audi active lane assist
The latest new attractive assistance system in the A6 Avant is Audi active lane assist, which becomes operational at 65 km/h. It uses a video camera mounted at the interior mirror to detect the lane markings. The image processing software can distinguish between up to eight lines and their colours.

If the A6 Avant approaches a line without signaling, the system helps the driver to steer back into the lane by subtly intervening in the electromechanical steering. The driver uses the MMI to determine how soon the intervention should occur and whether it should be accompanied by a steering wheel vibration and a warning tone.

Audi active lane assist also intervenes given the threat of skidding, supporting correct countersteering by briefly amplifying or reducing the power steering. The system can then include objects in the neighboring lane and along the edge of the road in its strategy. It also uses steering movements to determine when the driver's concentration begins to slack off and adjusts its interventions accordingly.

Long-range vision in the dark: the night vision assistant
Another high-end system in the new Audi A6 Avant is the night vision assistant with highlighting of detected pedestrians. Its far infrared camera (FIR) reacts to the heat emitted from objects. A computer converts the information from the camera to black and white images and shows them on the driver information system's display.

While the cooler surroundings appear dark, animals and people appear strikingly bright. The image-processing software detects people up to 100 metres away and highlights them with yellow markings on the display. If the computer estimates a hazardous situation to lie ahead, it is marked red and a warning gong sounds. The red warning also appears optionally in the head-up display.

The far infrared camera is mounted in one of the Audi rings in the single-frame grille. With its 24 degree angle of aperture, the camera can look ahead up to

300 metres, far beyond the high beam range. A protective window protects the camera from stone chipping; in the cold it is heated and if dirty cleaned together with the headlights. Like every assistance system, the night vision assistant also works within certain system limitations.

Parking with no trouble: the park assist
For conveniently parking, Audi offers various options. The Audi parking system employs acoustic and visual indicators. The reversing camera can be added to the system, and operates with a fish eye lens.

With the aid of image processing software, the camera shows the area behind the A6 Avant without distortion on the MMI monitor, with superimposed grid lines and auxiliary surfaces.

An innovation from Audi in the new A6 Avant is the park assist system. It uses 12 ultrasonic sensors that detect and measure spaces on the side of the road when driving at a moderate speed. If one of them is large enough, a note to this effect appears in the large DIS display.

Once the driver now puts the car in reverse, the system takes over the work of steering – the driver need only do the accelerating and braking.
The park assist system manoeuvres the A6 Avant into both parallel and perpendicular spaces relative to the road. When parallel parking, the space must be just 0.80 metres longer than the car. If necessary, the system will make multiple manoeuvers, forwards and backwards. It assists in the same way when leaving the parking space. The maximum speed in manoeuvring is 7 km/h.

Another innovation in the vehicle class will follow at a later time – the Audi parking system plus with 360° camera. Four small cameras – in the single-frame grille, in the rear and in the housings of the side mirrors – record images of the A6 Avant's immediate surroundings.

A computer compiles the information; the driver can obtain different views on the large car monitor, including a view from above. The Audi parking system plus with 360° camera increases safety when manoeuvring and in narrow driveways – here special views show the areas in front of and behind the Audi A6 Avant, and give a glimpse of the cross traffic.

The engines

The new Audi A6 Avant enters the market with two four-cylinder engines. Both engines have direct fuel injection, and are turbocharged – a downsizing concept affording impressive efficiency.

Compared with the previous model, fuel consumption in the model series has decreased by up to 21 percent, yet power and torque have increased. With a manual transmission the 2.0 TDI consumes on average only 5.1 litres of fuel per 100 km; its CO_2 emission is only 135 grams per km, a best value in the segment.

All engines in the new A6 Avant employ the technologies from Audi's modular efficiency platform. Optimized with regard to internal friction, they also have innovative thermal management, a recuperation system a start-stop system on board – regardless of the transmission used.

Exemplary efficiency: the 2.0 TDI

The most efficient engine available for the new A6 Avant is the 2.0 TDI – the greatly modified four-cylinder unit produces 130 kW and generates 380 Nm of torque at 1,750 to 2,500 rpm. The diesel engine has a displacement of 1,968 cc at its disposal; two balancing shafts in the crankcase ensure smooth, refined operation. The turbocharger with adjustable vanes builds up torque spontaneously and early.

Thanks to the excellent thermodynamics, the four-cylinder TDI can be operated with a high rate of recirculated and greatly cooled exhaust gas – the cooler combustion significantly reduces the raw emissions of nitrogen oxides.

In combination with the multitronic transmission, the 2.0 TDI powers the Audi A6 Avant from zero to 100 km/h in 8.5 seconds, and attains a top speed of 216 km/h. In the EU cycle the four-cylinder TDI manages with just 5.0 litres per 100 km – a CO_2 emission of 135 grams per km. Compared with the previous model, at 125 kW, fuel consumption has decreased by 13 percent. Audi provides the A6 Avant 2.0 TDI exclusively with front-wheel drive with power fed through the continuously variable multitronic transmission.

Powerful turbocharging: the 2.0 TFSI

The four-cylinder turbocharged 2.0 TFSI engine with its 1,984 cc is ultra-refined in sound, with two balancing shafts in the crankcase counteracting the second-order mass forces.

The two-litre engine comes with the Audi valvelift system, which switches the stroke of the exhaust valves between two stages as required. The system improves the gas exchange and thereby further increases the tractive power.

The 2.0 TFSI has an output of 132 kW and 320 Nm of torque, with full tractive power already available from 1,500 rpm right up to 3,900 rpm. In the manual transmission version, the four-cylinder TFSI accelerates the Audi A6 Avant in 8.6 seconds to 100 km/h and then on to its maximum of 218 km/h. Per 100 km travelled it gets by with 6.5 litres of fuel on average. Audi has the engine driving through the front wheels, via the continuously variable multitronic transmission.

Effective: the efficiency technologies
In both engines of the new A6 Avant the technologies from Audi's modular efficiency platform make a crucial contribution to reducing fuel consumption. The innovative thermal management, the start-stop system and the recuperation system particularly deserve mention in this regard.

The innovative thermal management reduces the fuel consumption by about 0.1 litres per 100 km, ideally distributing the temperature flows between the engine, the transmission and the interior in any situation.

Following a cold start, thermal management quickly brings the engine up to operating temperature – the phase of the increased friction resistance due to cold and viscous oil is greatly reduced. A switchable water pump or ball valve uncouples the engine from the cooling circuit in the warm-up phase.

Reducing fuel consumption: the start-stop system
The start-stop system lowers fuel consumption in the standard driving cycle by up to 0.4 litres per 100 km. The system switches off the engine when the Audi A6 Avant comes to a stop. The driver must keep the brake pedal depressed.

A powerful starter, supplied by a powerful and cycle-resistant battery, restarts the engine quickly and conveniently when the driver releases the brake or steps on the clutch again. With the TDI engine, a special function maintains fuel pressure in the rail when the vehicle stops. The start-stop system is only inactive during the early warm-up phase, on steep slopes or if it is extremely cold. The system, which the driver can switch off at any time, operates with either manual or automatic transmission.

The recuperation system affords a fuel saving of about 0.2 litres per 100 km. In coasting and braking phases, an intelligently controlled alternator converts the kinetic energy to electrical energy, which is then buffered in the battery. When

the A6 Avant accelerates again, the current flows back into the vehicle's electrical system. This relieves the alternator, which can now be operated at a lower voltage.

With its unusually high efficiency, the alternator in the Audi A6 Avant is the core of a new energy management system that monitors and regulates all electric currents in the vehicle. The system makes sure there is enough power for starting the engine after a long standing time, and ensures that the important electrical systems can operate even when the vehicle is stationary. The electrical system of the new A6 Avant has the form of an "H," with its cross beams lying under the rear seats. Many control units are also placed in this area to keep cable lengths short.

Audi also kept low weight in mind for the electrical system: The cross-sections of all the wires were minimized, and the main battery lead is made of aluminium rather than copper.

Progress in the new A6 Avant was also achieved with the exhaust gas systems. High-quality stainless steel and newly computed geometrical configurations allow thinner walls, improving lifetimes and greatly reducing the weight. Thanks to the low fuel consumption, Audi was able to reduce the fuel tank capacity to 65 litres – another element of the lightweight design concept.

Continuously variable: multitronic
The flexible multitronic transmission has been greatly overhauled for use in the new A6 Avant. It nearly always allows the engine to operate in the range of its optimal efficiency. For the dynamic driver it provides a sporty mode with short gear ratios and a manual mode with eight fixed gear ratios. The variator, the central component of the multitronic, allows a spread of 6.7 between the shortest and the longest ratios.

The variator's method of operation is ingeniously simple. A plate link chain transmits the power between two variable conical pulley pairs – one located on the input shaft, the other on the output shaft. When the faces of the two conical pulleys are pushed apart or pulled closer together, the chain runs on different radii, steplessly altering the gear ratio.

The electronically controlled, hydraulic multi-plate clutch also contributes to the multitronic transmission's efficiency by disconnecting it from the engine when the car is at rest.

Chassis

The new Audi A6 Avant has a technically highly advanced chassis, providing flexible cushioning like a luxury-class sedan and featuring sporty handling like a coupe. The wheel control arms and many other components are made from lightweight aluminium; the new electromechanical power steering operates with outstanding efficiency. The Audi drive select dynamic system is standard. Options from Audi include adaptive air suspension and dynamic steering, with the latter to become available somewhat later.

Innovative layout: the front axle

The front suspension comprises five links per wheel – two transverse links on the upper plane, the support link and control arm in the lower plane, and the track rod. The suspension can handle longitudinal and lateral forces separately. Its bearings respond smoothly in the longitudinal direction, and are very stiff in the transverse direction for sporty precision. The track measures 1.63 metres, an increase of 15 mm on the previous model.

Lightweight aluminium forged parts serve as axle guides; the wheel carriers and pivot bearings are also made of this material. The tube-shaped stabilizer is also very light in weight. The integral subframe for the engine and the front axle forms the backbone of the suspension. Made of high-tensile steel, it is rigidly bolted to the front end of the car; due to its high rigidity, steering forces are applied without lag.

The electromechanical steering in the A6 Avant, newly developed from the ground up, is placed well down, at the level of the wheel centre. The track rod forces are directly introduced, resulting in a nimble response, high precision and sensitive feedback from the road. The steering rack and the servo drive are arranged concentrically, making the layout very compact.

The power assistance depends on the driven speed. The system is extremely efficient. Because it consumes no energy when driving straight ahead, it lowers petrol consumption by as much as 0.3 litres per 100 km depending on the engine. The electromechanical drive allows the steering to work together with the new assistance systems Audi active lane assist and park assist.

The power steering system features a sporty and direct 16.1:1 overall ratio. Despite the longer wheelbase, the turning circle of the new A6 Avant has barely increased relative to the preceding model, amounting to about 11.9 metres.

Comfort and dynamics: the rear axle

The rear axle of the new Audi A6 Avant, with a track width of 1.62 metres, follows the track-controlled trapezoidal link principle – a compact design combining excellent comfort and driving qualities. Each axle carrier consists of two longitudinal and transverse tubes created from high-pressure internal forming. Four hydraulic bearings connecting the axle carrier to the body also greatly contribute to the ride comfort.

The two hollow trapezoidal links are elaborately sand-cast from warm-hardened aluminium; the wheel carriers are of chill-cast aluminium. A steel tube serves as a stabilizer. The springs and shock absorbers, structurally separate from one another, rest directly on the wheel carriers. This allowed the development engineers to achieve a high shock absorber ratio – the shock absorbers respond with the utmost sensitivity.

As an alternative to the standard steel suspension, Audi offers a sport suspension that lowers the body by 20 millimetres. quattro GmbH offers an even stiffer S line sport suspension that lowers the body by an additional 10 millimetres.

Even more bandwidth: Audi drive select
Audi drive select is standard on the Audi A6 Avant. It modifies the accelerator characteristics, the shift points of the automatic transmission and the power steering boost. The driver can vary the function of these components between the three modes “comfort,” “auto” and “dynamic.” Both engines additionally offer the “efficiency” mode. The “individual” mode is also available, for compiling the driver’s own favourite profile within certain limits.

The “efficiency” mode supports an especially fuel-efficient driving style. In this case Audi drive select also operates the deluxe automatic air conditioning and the optional adaptive air suspension and ACC stop & go. The adaptive light, the ambient lighting, the Audi pre sense safety system, the sport differential and the dynamic steering are also integrated in Audi drive select as further optional extras.

The dynamic steering, which is available as a special option, can vary its gear ratio by nearly 100 percent. It has a compact design and weighs only 2.4 kilograms. Its core is a superposition gear; the harmonic drive was originally developed for robotics and aeronautics. With no play, and little friction, it can precisely transmit enormous torque magnitudes and achieves a very high efficiency.

In urban traffic, especially during maneuvering, the dynamic steering makes the A6 Avant extremely manageable with the system’s very direct gear ratio

and high power assistance. On inter-urban roads this directness and power assistance gradually decline with increasing speed, and at high speeds on the freeway an indirect gear ratio and low power assistance promote calm, relaxed straight-ahead driving.

The dynamic steering system works closely together with the ESP stabilisation program in the sportiness and safety areas. It countersteers when cornering at the handling limits, if necessary. In most situations, its subtle interventions, which the driver often does not even notice, result in a load change that reduces understeer or oversteer as necessary.

The dynamic steering needs less time for its corrections than the brake system needs to develop pressure at the wheels – in many situations the dynamic steering does most of the work. This increased driving safety and sportiness is particularly noticeable when driving at higher speeds or on a slick substrate.

Riding on air: the adaptive air suspension
Audi installs adaptive air suspension as a special option, including electronically controlled damping, so that the new A6 Avant will flexibly respond to unevenness of all kinds. Up front are struts in which the pneumatic springs enclose the shock absorbers, while separate pneumatic springs and dampers are used in the rear.

The lightweight supercharger operates at high efficiency. The aluminium pressure vessel in the spare wheel well holds 5.8 litres of air at a pressure of 18 bar. A control unit manages the mode of operation of the CDC shock absorbers (CDC: continuous damping control), depending on the condition of the road, the driver's style and the mode of Audi drive select. Employing numerous data, the computer individually readjusts the damping forces for each wheel in millisecond cycles.

Electromagnetically actuated valves control the flow of the hydraulic fluid between the inner and outer tubes, with the damper characteristics changing as the cross-section becomes larger or smaller.

The adaptive air suspension sets the height of the body at different levels depending on the vehicle speed and the driver's request. In "auto" mode, the body is lowered 20 millimetres once the A6 Avant has driven for at least 30 seconds at a speed greater than 120 km/h. This increases stability and reduces drag. In "dynamic" mode, the body is lowered 10 millimetres from the outset, and is lowered another 10 millimetres when the switchpoint is reached. The body is not lowered at all in "comfort" mode.

The air suspension can also raise the body 20 millimetres. The adaptive air suspension also serves as a high-tech level control to keep the body at the ideal ride height at all times, regardless of the cargo load. Passengers always experience the same superior level of comfort.

New functions: the ESP stabilisation system
A state-of-the-art control unit manages the ESP stabilization system. The driver can select a sport mode at the MMI. Intervention by the engine is then largely deactivated and braking slightly diminished; up to a certain speed the system allows oversteer that is dynamic and therefore safe at all times, when the vehicle is accelerated. The ESP also integrates a hold assist function for slopes and grades. The brake light operates adaptively; at maximum braking it flashes rapidly to warn the drivers of following vehicles.

Together with the electromechanical steering, the ESP also helps the driver with braking and countersteering on a surface that is slippery on only one side – this feature goes by the name of Driver Steering Recommendation (DSR).
At the start of braking a steering pulse indicates to the driver the direction in which to steer if the car is to remain stable; afterwards the steering wheel is power-assisted accordingly.

The front-wheel drive variants of the new Audi A6 Avant bring along a new technology that further increases the car's agility – ESP with electronic limited slip differential. If the control unit detects that the load on the front inside wheel is reduced too much in fast cornering and there is a risk of skidding, it initiates brief, controlled braking of that wheel.

The intervention causes excess torque to flow to the outside wheel. At the same time, the difference between the drive forces generates a certain yaw moment that helps the driver by turning the A6 Avant very slightly into the curve. Self-steering behavior remains neutral longer, and handling becomes more precise, agile and stable.

Stable and lightweight: the brakes
The brake system of the new A6 Avant is designed for maximum performance at low weight. The brake booster consists largely of aluminium. The ventilated disks measure 320 millimetres in diameter up front and 300 millimetres at the rear. The design of the cooling ducts resembles turbine blades – the high rate of exhaust air removal considerably enhances brake performance.

Two-part calipers are used to clamp the front and rear brake discs, with the hydraulic part consisting of aluminium and the caliper itself being cast iron.

The electromechanical parking brake integrated in the rear axle calipers is quiet and lightweight.

Large and elegant: the alloy wheels
The large alloy wheels harmonize perfectly with the sporty and elegant line of the new A6 Avant, and 17-inch alloy wheels are fitted as standard. The range of optionally available wheels includes 18-inch, 19-inch and 20-inch styles.

Audi and quattro GmbH offer extremely attractive designs here – partly polished forged wheels with spoke sides in anthracite or with a machine-polished titanium look.

All tyres have optimised rolling resistance for the new A6 Avant – at no loss of dynamics or comfort. A tyre pressure monitoring display is optional – an indirectly measuring system that records and analyzes the characteristic vibrations of the tyres via the ABS sensor system. A space-saver spare tyre is standard fitment.

The Audi A6 Avant is available for sale in Australia from June 2012.

Manufacturer List Pricing
(excluding dealer delivery and government statutory charges)

Audi A6 Avant 2.0 TFSI	$81,800
Audi A6 Avant 2.0 TDI	$82,900