

Bluefin is back

Superchips has cracked the complex codes and can now program the current crop of Volkswagen Group vehicles using the OBD port...



OF ALL THE many brand names on the UK performance tuning market, especially among those involved in the modification of electronic engine management systems, one particular company has been at it much longer than most...

Superchips, based in Buckingham, has a pedigree in specialist tuning and ECU remapping that can be traced right back to the late Seventies, when the company's predecessor was one of the first to modify the electronic mapping in ECUs for cars like the Mitsubishi Starion, leading – quite literally – to a number of Group N championship wins.

This was the era when turbocharged fast-road cars were in the ascendancy and a range of re-mapped ECU chips followed during the mid-Eighties, for cars like the Ur quattro of course, with the brand name eventually becoming the company name when Superchips was founded in 1989.

While significant power gains could always be made by turning up the boost on turbo cars, re-maps also followed for naturally-aspirated cars and the Superchips expertise

in engine management modifications spread to include a great many marques, both here in the UK and in the USA, including consultancy work for major manufacturers.

Throughout all this time, though, the procedure required removal of the ECU from the car, for the re-mapping to take place on the workbench. But then, after working extensively on Volkswagen Group cars since the early '90s, Superchips became one of the first to pioneer serial port re-mapping, via the on-board diagnostic port – literally plugging in to the OBD port and downloading the new software to the ECU, without having to touch the control unit itself, let alone remove it from the car.

Of course, Superchips wasn't the only company with this capability, and in order to compete with rivals who could

offer multiple programs, selected using a switching box, to run with different power outputs according to fuel grade, or offering security functions, Superchips developed its own take on the hand-held tuning module. The Bluefin device was first pioneered on the Ford model range, but it wasn't long before the system was applied to the many and varied Volkswagen Group models.

The beauty of the Bluefin system is that it allows the customer to download the revised software themselves, using a hand-held module about the size and shape of a slipper. This is first plugged in to the OBD port and the standard software is copied off and then sent to Superchips by internet, using the PC software provided.

The standard software is checked by the Superchips technicians and a revised version, with the new high-performance

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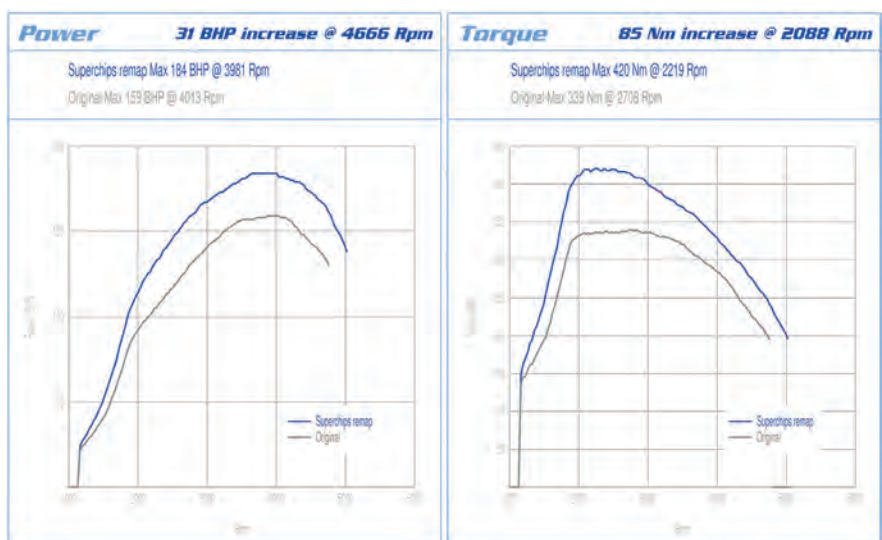
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modifications incorporated, is returned, usually within the hour. This is then loaded from the PC into the Bluefin handset, and from then on the handset can be used to load or off-load the high-performance map simply by plugging it in to the OBD port and following a simple sequence of procedures, taking about 15 to 20 minutes.

The big advantage with Bluefin is that, rather than just being deactivated, the modified map is completely removed from the ECU when not needed; for instance, when another driver borrows the car, when it goes in for servicing or when it is sold.

But then the beauty of Bluefin was temporarily thwarted, when the revised engine management systems used over the last few years meant that high-performance software could no longer be uploaded through the OBD port. Superchips could still re-configure the ECU, but it now meant taking it out of the car again and opening it up on the bench so that it could be modified using a special download rig, a process that also had to be repeated to put the car back to standard.

It was just as effective in terms of performance, but nowhere near as convenient for the customer. But where



there's a will there's a way and rather than see the Bluefin concept remain under-utilised – after a lot of investigation and development – Superchips have finally cracked the complex codes involved and can now map all the most recent models through the OBD port again. Bluefin is back.

To prove the point, we recently visited Superchips HQ to drive a 2014 (63-reg) A3 Sportback S-line 2.0 TDI, powered by the CRBC series 1968 cc turbocharged 16-valve common-rail TDI engine, with Bosch EDC 17C64 engine management. It's essentially the same long-stroke (81.0 by 95.5 mm) 2.0 TDI unit that is used in the MQB Mk 7 Golf and SEAT Leon. In standard form, this engine is officially rated at 110 kW (150 PS/ 148 bhp) at 3500 rpm, with a maximum torque figure of 320 Nm (236 lb.ft.) between 1750 and 3000 rpm.

It's always interesting to examine the before and after power plots for any re-map. Even allowing for the minor discrepancies between PS and bhp when measuring the car in standard form, Superchips often find that the standard engine produces higher than the factory figures; in this case, the A3 2.0 TDI was recorded at 159 bhp at 4013 rpm and 339 Nm at 2708 rpm.

With the high-performance Superchips map installed, now by Bluefin, the most noticeable increase in power comes from about 1750 rpm, when the power and torques curves simply swell and rise on the vertical axes. Much more power and torque is produced at exactly the same engine speeds, rather than the curves being shifted up the rev range in the search for 'headline' figures wrung out at the red line. Indeed, it's significant that those maximum figures – now 184 bhp and 420 Nm – are produced

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at slightly lower engine speeds than the standard mapping.

And the improvement in power claimed by Superchips, in this case by 31 bhp and 85 Nm, is based on that initial recorded figure, rather than related to the more modest factory figure – a sleight of hand that is used by some tuning companies to exaggerate the actual improvement achieved.

Clearly, from the conservative shape of the curves, these improvements in power and torque are aimed more at improving the overall driveability, performance and response in normal road use, rather than any intention to turn the car into a fire-breathing monster. The subjective impression when driving the modified car is of 'the same but much better', or to draw a parallel with the current promotion for a health-enhancing product: 'like you, but on a *really* good day'!

Unfortunately, ambient conditions weren't conducive to a full before and after performance test, with cold wet and slippery roads in mid-November thwarting any attempt at accurate standing-start acceleration tests, even with the car in standard form.

Comparing the in-gear acceleration times, though, shows a measurable improvement, particularly in the higher gears; with the Bluefin knocking nearly two seconds off the 50 to 70 mph time in sixth gear, for instance. That might not seem all that significant on paper, but in the real world it produces a very useful improvement in response and road speed – when encountering a long ascent, driving into strong headwinds or changing lanes in busy motorway traffic, for instance.

Neither did a half a day driving the car give a real opportunity to scientifically compare fuel consumption figures, before

and after Bluefin, but previous experience suggests that – driven accordingly, using the improved torque and tractability to achieve the same road speed in a higher gear – the modified car can maintain and often improve its performance in terms of miles per gallon.

So, the good news is that the Bluefin system is now available again for virtually the whole range of Volkswagen Group vehicles, enabling the customer to carry out the conversion themselves and enjoy the enhanced performance and tractability – also perhaps even improving the fuel economy – with the option to just as easily remove the modified mapping whenever the need arises... 🇩🇪

Performance figures (in-gear acceleration) Audi A3 Sportback 2.0 TDI 150

	Standard car	With Superchips Bluefin
30-50 mph (3rd gear)	4.3	3.6
30-50 mph (4th gear)	6.5	5.1
50-70 mph (3rd gear)	4.6	3.9
50-70 mph (4th gear)	6.0	5.3
50-70 mph (5th gear)	7.8	6.5
50-70 mph (6th gear)	10.7	8.9



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