RACE

PROFESSIONAL OBDII/CHIP TUNING SYSTEM
FOR THE RECALIBRATION OF STOCK ECU ENGINE WORKING PARAMETERS

E-TUNING SYSTEM FOR THE RECALIBRATION & OPTIMIZATION OF ECU ENGINE WORKING PARAMETERS

BY DIMSPORT TECHNOLOGY

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RACE

TUNING SOLUTION

PROFESSIONAL OBDII/CHIP TUNING SYSTEM

FOR THE RECALIBRATION OF STOCK ECU ENGINE WORKING PARAMETERS

RACE EVO

DIMSPORT TECHNOLOGY

www.dimsport.com

ADVANCED SOLUTIONS for your tuning purposes

DIMSPORT TECHNOLOGY is a group of companies leading the tuning world since 1991:

- **DIMENSIONE SPORT**, a TÜV certified company: strategic planning, commercial and administrative management under this company head-quarter. The technical training and supporting are structured from here.
- **DIMTECH**, ISO 9001/UNI EN ISO 9001, is the certified production company for Dimsport Technology Group. Some products are commercialized under this brand (DYNORACE power bench testers, etc.);
- **DIMSPORT CENTER FIRENZE**, R & D centre for new software developments;
- **MOTOR DIMSPORT**, Spanish branch located in Barcelona.
- Additionally, numerous collaborations have been established in all the continents to offer the best possible cooperation to all our clients.
- Leading company in the engineering of tuning equipment since 1991, **DIMSPORT TECHNOLOGY GROUP** consists of more than 60 people. Our well-known philosophy of quality products, reliability and seriousness in customer support has been widely acclaimed during the years. Our **RACE** tuning system with **GENIUS** OBDII console, for the management of the engine working parameters, is just one of the products we offer:
- **RAPID** add-on-modules for turbo diesel engines (car, tractor, truck and marine applications),
- **RAPID BIKE** add on modules for motorbikes,
- **DYNORACE** 2WD/4WD fly wheel and eddy current braked rolling road dynamometers (power bench testers) with link of front/rear axle rollers (4WD braked version) to test vehicles with dynamic management of the torque and power (ex. BMW X6).

RACE EVO REMAPPING SOFTWARE!

RACE is a professional application system for ECU tuning operations, emerging from the range of offers available on the market thanks to a simple, instinctive working logic and advanced technical features, fulfilling all demands of an integrated electronic tuning system ("E-Tuning"):

- Short times to learn the use of the program thanks to the Windows operational logic and the use of well-known concepts and parameters (like RPM, real spark advance degrees, etc.);
- Flexible structure as a modular system and upgrade options by a great variety of additional tools;
- Automatic conversion of hexadecimal/decimal data set into relevant parameters (ignition timing, boost pressure, etc…).
- Table datasets, 2-D linear and 3-D chart graphical representation of the datasets;
- Identification of the fundamental engine working datasets (maps) by the use of our "Setting Files", for quick and effective improvements of the engine performance;
- Tuning operations allowed on table datasets, 2-D linear and 3-D chart; semi-automatic modification by interpolation of pre-selected parameters;
- 2-D/3-D graphical and numerical representation of the difference between original and tuned parameters;
- OBDII serial reading and programming operations with GENIUS, independent touch screen console;
- MASTER/SLAVE serial application for tuners'networks (specific GENIUS version);
- BDM operations accessible with TRASDATA;
- Real time checksum recalculation modules.

RACE TUNING SOFTWARE ALLOWS DEVELOPMENTS for ALL CLASSES OF VEHICLE

AVAILABLE versions:

RACE STANDARD

RACE BASIC

RACE PLUS

RACE STANDARD

THE ENGINE WORKING MAPS FOR YOUR TUNING OPERATIONS

We locate the maps, you perform your own ECU recalibrations

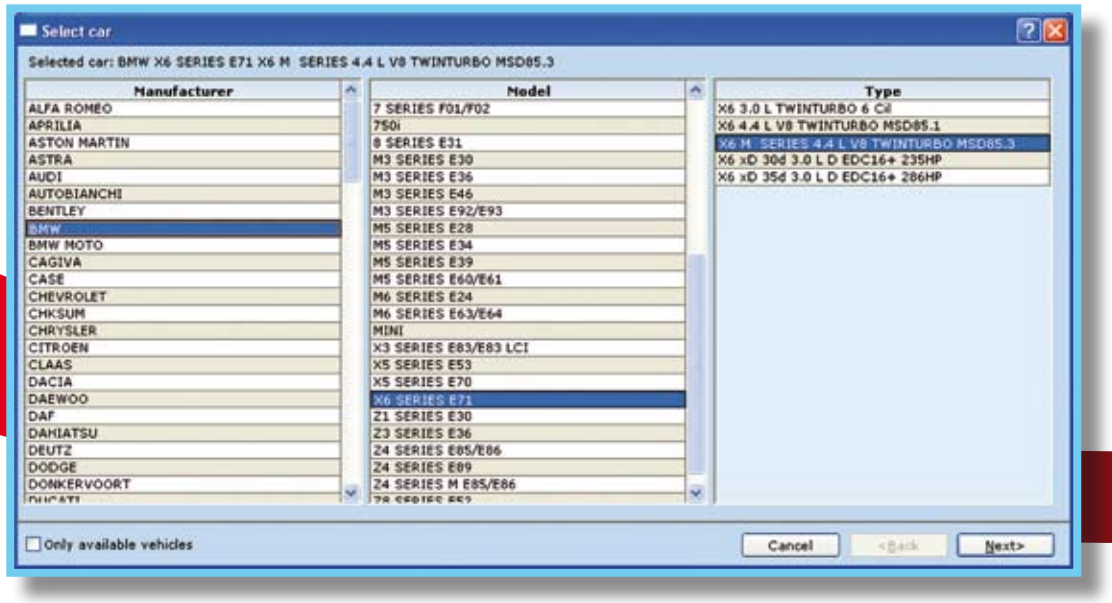
RACE STANDARD allows tuners to work on the relevant engine working parameters like injection, ignition (timing), boost, rpm/speed/ torque limiters, etc…. This is possible with our "**SETTING FILES**": they are **templates which locates and decodes the main engine working parameters. The binary/hex software (stored into the stock ECU) is converted into** useful **maps** (injection, boost, etc…) for your tuning purposes.

These maps are a perfect shortcut for the recalibration of the engine performance during your tuning operations. Our "**SETTING FILES**" are available for **RACE STANDARD** and **RACE PLUS**.

The maps - located and decoded by our Engineers - are edited in three forms:

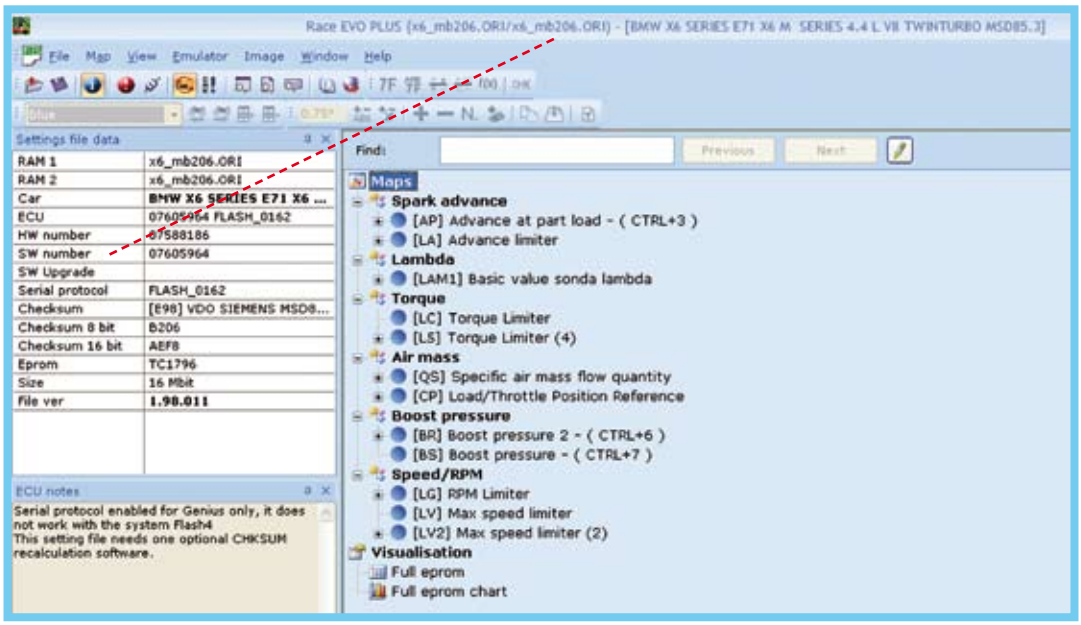
- ***numeric table (Cartesian diagram);***
- ***3-D chart***
- ***2-D diagram***

The tuner first reads (usually via OBDII or BDM) information concerning the ECU stock software from the vehicles. The proper **SETTING FILE** for **RACE** is therefore quickly and easily identified: a database structure allows to select **Manufacturer, Model** and **Engine Type**.



The next step is the visualization of the stock software versions: in this example BMW -> X6 series E71 -> X6 M Series 4.4 twin turbo engine.

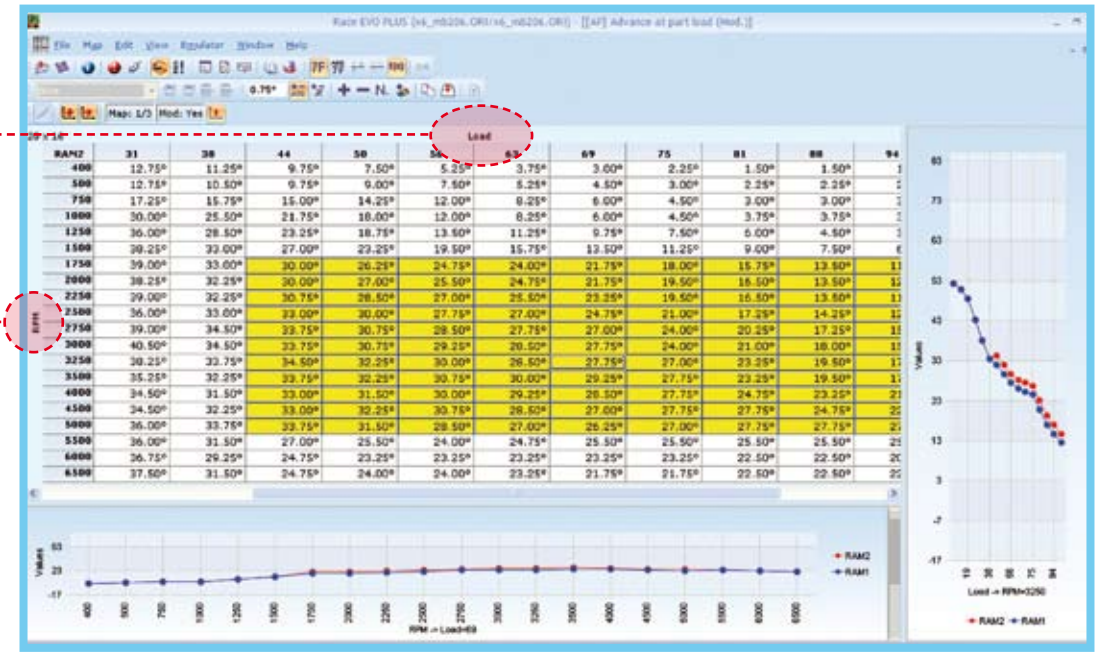
Our engineers develop a specific **SETTING FILE** for each stock software analyzed. The correct setting file to use can be easily identified according to the hardware and software numbers.

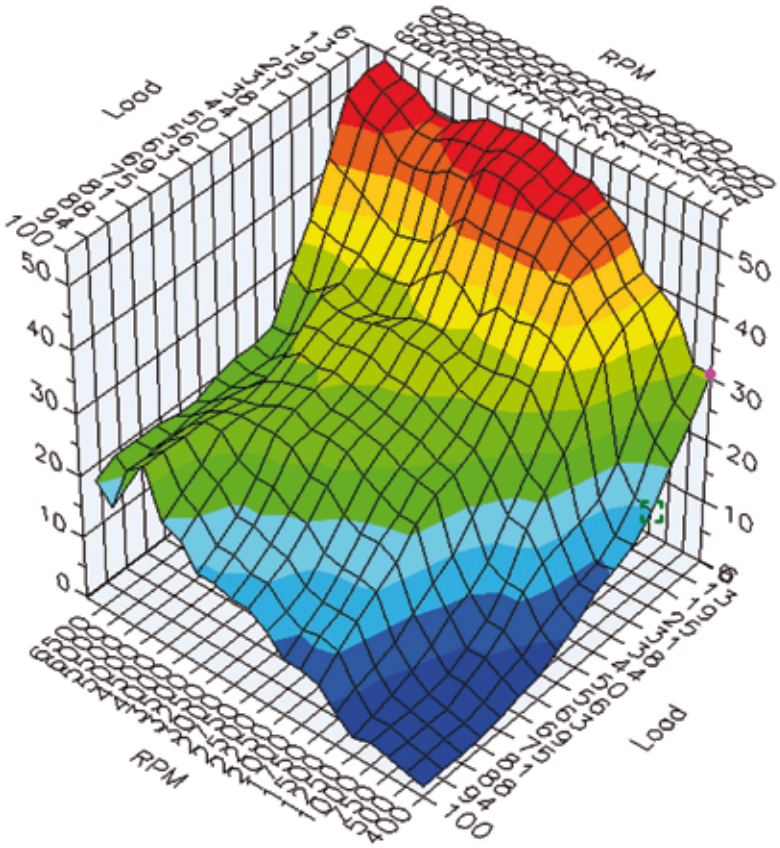


The maps can be visualized in 3 different ways: **numeric table** (Cartesian diagram), **2-D** and **3-D charts**.

Let's take a look at one of the available maps: spark advance at part load (ignition).

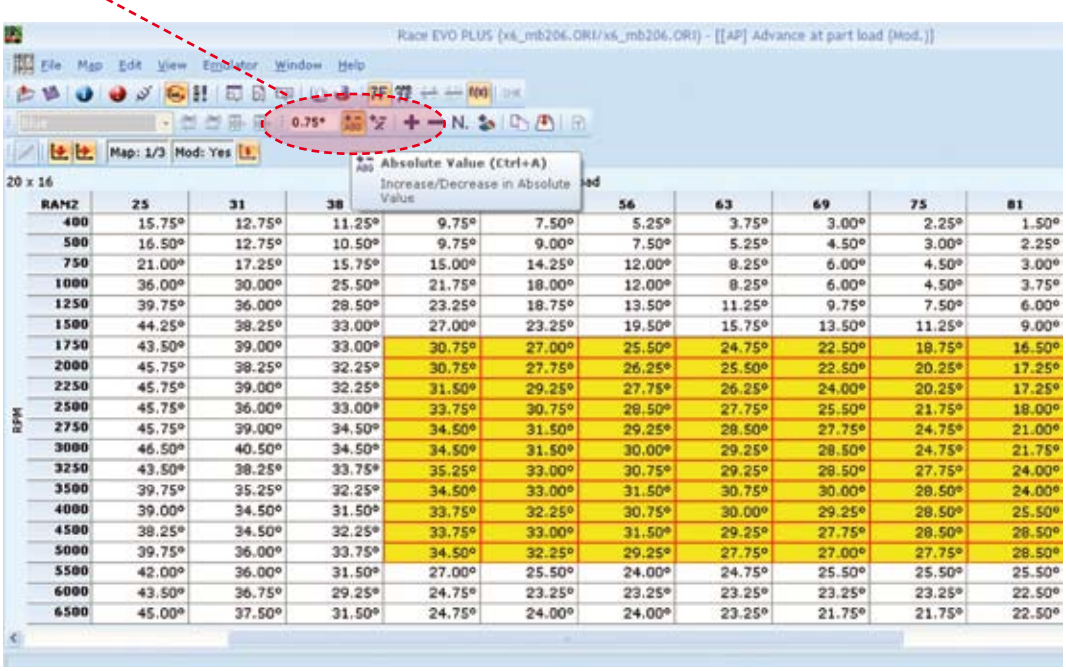
The numeric map (Cartesian diagram) always displays the parameters to tune according **RPM (revolutions per minute) and LOAD (in percentage, from 0 to 100%) as axes**.





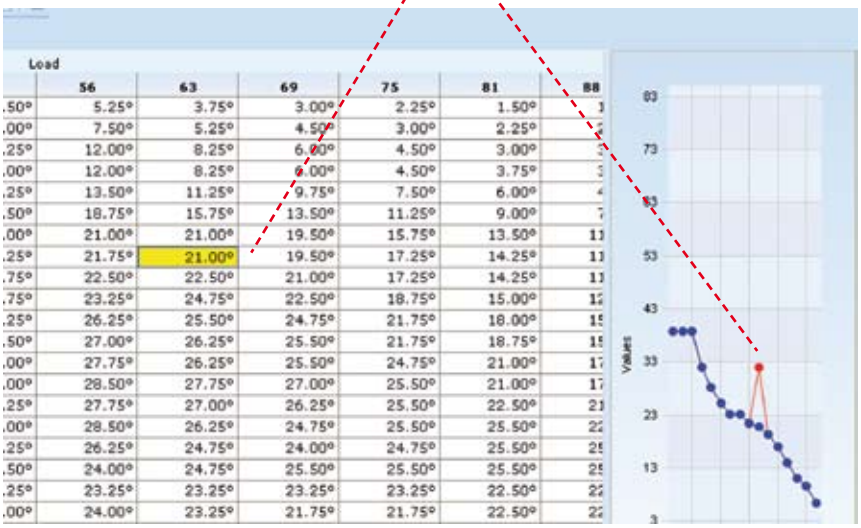
The 3-D charts is particularly useful to examine the map in order to find and correct imperfections, irregular configurations of the curve, etc..

The modification is easily performed: the tuner can select a specific cell or a wider area, and the parameters can be increased or decreased. The variation in the numeric table can be expressed as a percentage (e.g. +10%) or absolute values (e.g. 0,75, +10, +100…).

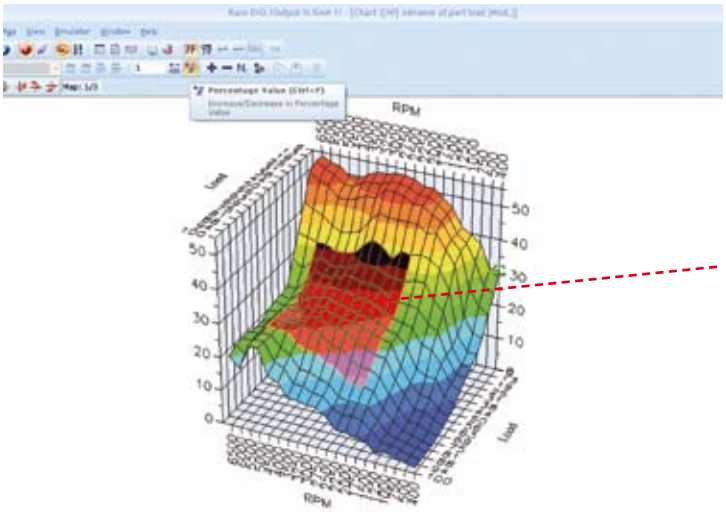


RAMZ	25	31	38			56	63	69	75	81
400	15.75°	12.75°	11.25°	9.75°	7.50°	5.25°	3.75°	3.00°	2.25°	1.50°
500	16.50°	12.75°	10.50°	9.75°	9.00°	7.50°	5.25°	4.50°	3.00°	2.25°
750	21.00°	17.25°	15.75°	15.00°	14.25°	12.00°	8.25°	6.00°	4.50°	3.00°
1000	36.00°	30.00°	25.50°	21.75°	18.00°	12.00°	8.25°	6.00°	4.50°	3.75°
1250	39.75°	36.00°	28.50°	23.25°	18.75°	13.50°	11.25°	9.75°	7.50°	6.00°
1500	44.25°	38.25°	33.00°	27.00°	23.25°	19.50°	15.75°	13.50°	11.25°	9.00°
1750	43.50°	39.00°	33.00°	30.75°	27.00°	25.50°	24.75°	22.50°	18.75°	16.50°
2000	45.75°	38.25°	32.25°	30.75°	27.75°	26.25°	25.50°	22.50°	20.25°	17.25°
2250	45.75°	39.00°	32.25°	31.50°	29.25°	27.75°	26.25°	24.00°	20.25°	17.25°
2500	45.75°	36.00°	33.00°	33.75°	30.75°	28.50°	27.75°	25.50°	21.75°	18.00°
2750	45.75°	39.00°	34.50°	34.50°	31.50°	29.25°	28.50°	27.75°	24.75°	21.00°
3000	46.50°	40.50°	34.50°	34.50°	31.50°	30.00°	29.25°	28.50°	24.75°	21.75°
3250	43.50°	38.25°	33.75°	35.25°	33.00°	30.75°	29.25°	28.50°	27.75°	24.00°
3500	39.75°	35.25°	32.25°	34.50°	33.00°	31.50°	30.75°	30.00°	28.50°	24.00°
4000	39.00°	34.50°	31.50°	33.75°	32.25°	30.75°	30.00°	29.25°	28.50°	25.50°
4500	38.25°	34.50°	32.25°	33.75°	33.00°	31.50°	29.25°	27.75°	28.50°	28.50°
5000	39.75°	36.00°	33.75°	34.50°	32.25°	29.25°	27.75°	27.00°	27.75°	28.50°
5500	42.00°	36.00°	31.50°	27.00°	25.50°	24.00°	24.75°	25.50°	25.50°	25.50°
6000	43.50°	36.75°	29.25°	24.75°	23.25°	23.25°	23.25°	23.25°	23.25°	22.50°
6500	45.00°	37.50°	31.50°	24.75°	24.00°	24.00°	23.25°	21.75°	21.75°	22.50°

The modification can be set also on the 2D (by dragging up or down one or more points of the curve, that once modified change colour becoming red) and the 3D charts. The variation performed in this way are automatically reported in the numeric table.



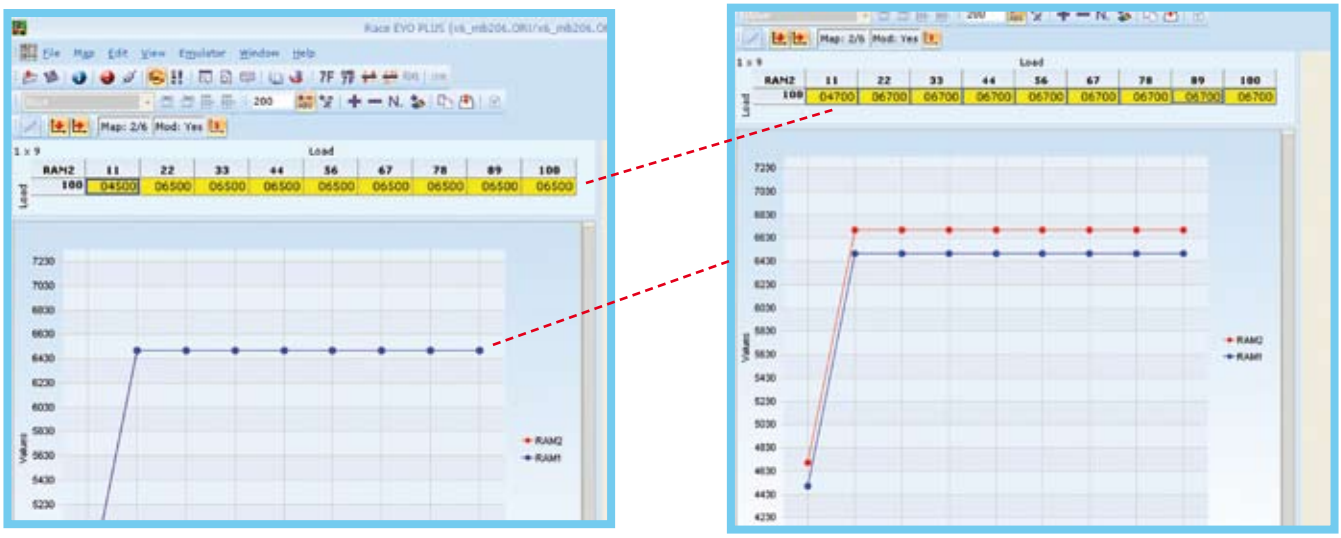
Load	56	63	69	75	81	88
.50°	5.25°	3.75°	3.00°	2.25°	1.50°	1
.00°	7.50°	5.25°	4.50°	3.00°	2.25°	2
.25°	12.00°	8.25°	6.00°	4.50°	3.00°	3
.00°	12.00°	8.25°	6.00°	4.50°	3.75°	3
.25°	13.50°	11.25°	9.75°	7.50°	6.00°	4
.50°	18.75°	15.75°	13.50°	11.25°	9.00°	7
.00°	21.00°	21.00°	19.50°	15.75°	13.50°	11
.25°	21.75°	21.00°	19.50°	17.25°	14.25°	11
.75°	22.50°	22.50°	21.00°	17.25°	14.25°	11
.75°	23.25°	24.75°	22.50°	18.75°	15.00°	12
.25°	26.25°	25.50°	24.75°	21.75°	18.00°	15
.50°	27.00°	26.25°	25.50°	21.75°	18.75°	15
.00°	27.75°	26.25°	25.50°	24.75°	21.00°	17
.00°	28.50°	27.75°	27.00°	25.50°	21.00°	17
.25°	27.75°	27.00°	26.25°	25.50°	22.50°	21
.00°	28.50°	26.25°	24.75°	25.50°	25.50°	22
.25°	26.25°	24.75°	24.00°	24.75°	25.50°	25
.50°	24.00°	24.75°	25.50°	25.50°	25.50°	25
.25°	23.25°	23.25°	23.25°	23.25°	22.50°	22
.00°	24.00°	23.25°	21.75°	21.75°	22.50°	22



On the 3D charts, the new calibration is achieved after selecting a cell or an area; also in this case, the tuner can choose variations in percentage or absolute values.

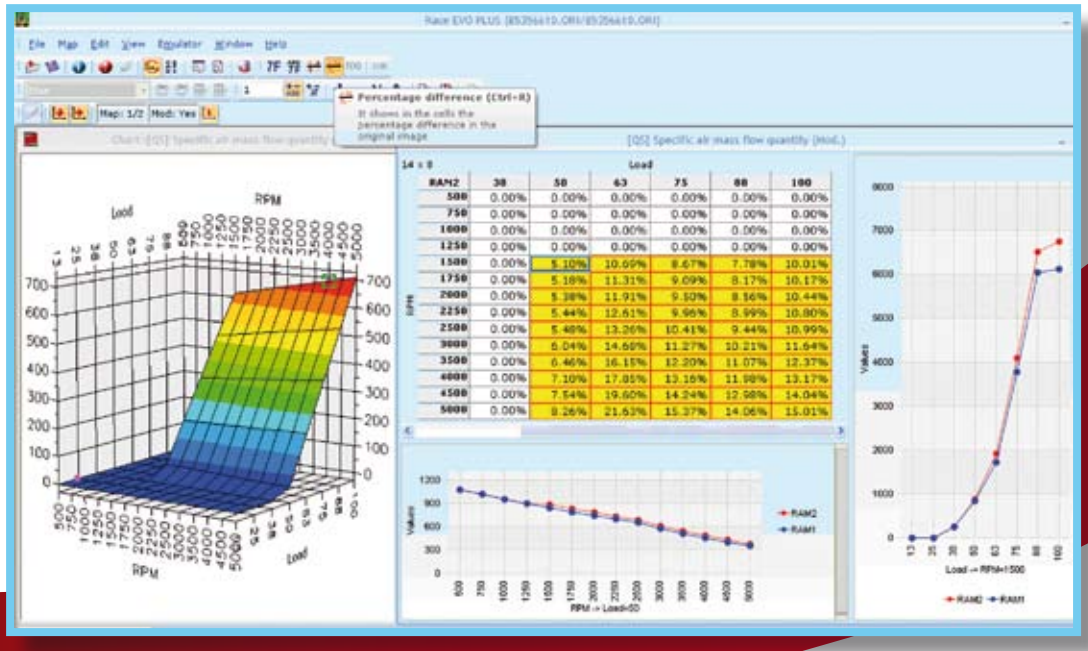
…Do you need to change the speed limiter (for allowed purposes) or - like here displayed - the rpm limiter?

Just open the map and input the new value… (in this case from 6.500 to 6.700 rpm).

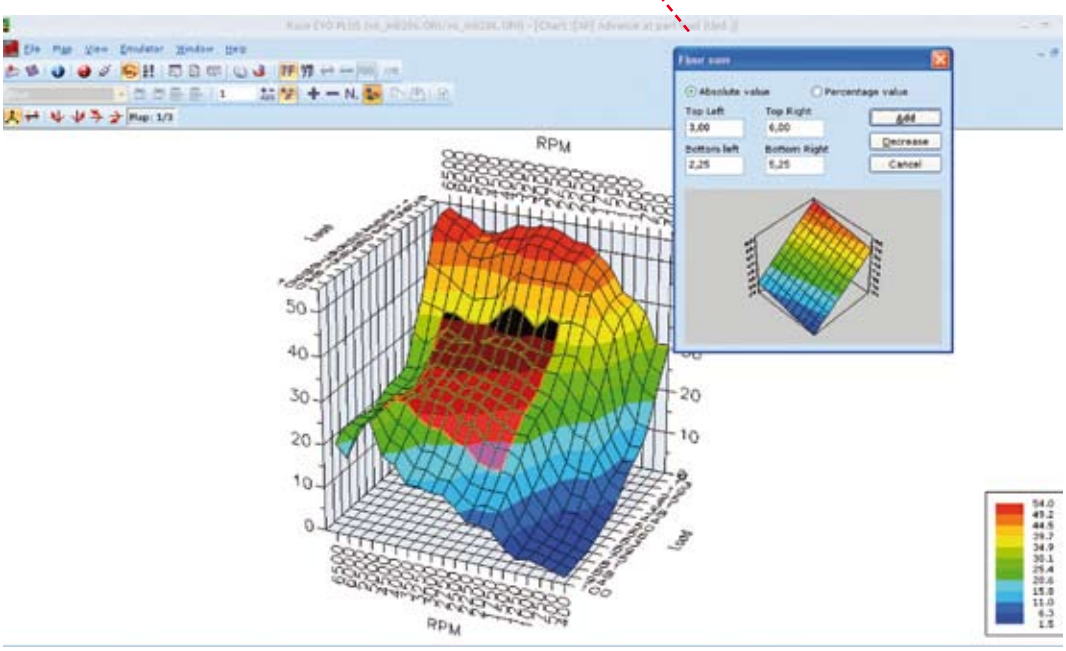


IMPORTANT NOTE

RACE is supplied with two RAM memories to compare different files (e.g. original/modified file): this feature allows to develop your tuning works respecting and improving the logic shown in the engine maps. The differences between the two RAM memories can be both numerically and graphically reported.



RACE offers also a more advanced system for your tuning activity: the FLOOR SUM. This is a semi-automatic function available on the Cartesian diagram and 3 D chart, allowing the tuner to increase or decrease the values of a pre-selected area with a determined linear interpolation. The tuner determines the increment (or decrement) on the four angles of this tuning surface, and consequently all the values located in this area will be automatically modified.

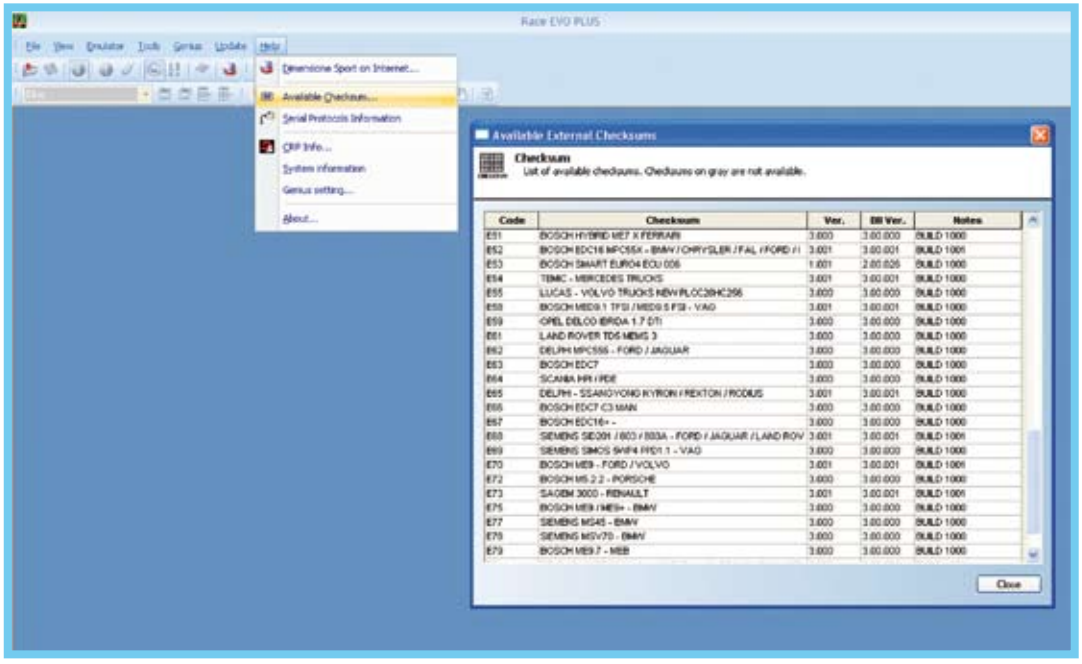


This semi-automatic system permits precise and homogeneous modifications of the original engine working parameters.

CHECKSUM MODULES FOR RACE

RACE can be fully exploited by the extensions "**checksum modules**", specific software upgrades allowing **RACE** to reset the checksum recalculation when an algorithm formula protects the original data against further adjustments. The checksum recalculation is automatically and immediately accomplished after every change sets.

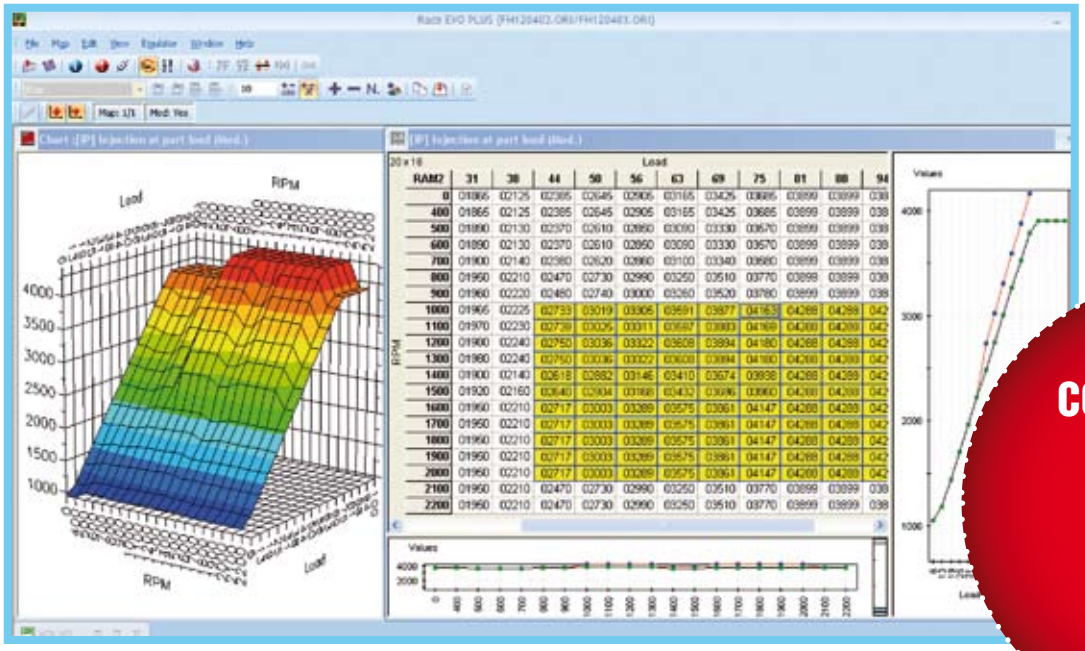
These upgrades allow the tuner to perform real time adjustments using **MET 16 Eprom emulator**.



COMMERCIAL VEHICLES, HEAVY TRUCKS & TRACTORS
STRATEGIC APPLICATION TO REDUCE THE CONSUMPTION

If you are involved in **COMMERCIAL VEHICLES, LIGHT/HEAVY TRUCKS & TRACTORS**, a specific version of **RACE** allows improvement in torque and power to reduce the consumption, with more satisfactory and effective driving operations. **Sample modified files are supplied to guarantee good results in torque improvements as well as CERTIFIED consumption decreases.**

Some examples:



Example of map on a NEW VOLVO FH13 440 HP (serial programming available)

REDUCED CONSUMPTION
TRUCK
VOLVO® FH13
BEFORE
2,5 km/l
AFTER
2,8 km/l

The working logic is the same as the version of RACE previously described.

SERIAL READING AND PROGRAMMING OPERATIONS VIA DIAGNOSTIC OR OBDII PORT!

Most trucks can be optimized with easy interventions via diagnostic or OBDII port (according to the vehicle): specific information supplied allow to know exactly what cable to use (example: when to use the 30 pin or the 38 pin diagnostic connectors on Iveco vehicles…) and where to find the socket on the vehicle…

RACE BASIC

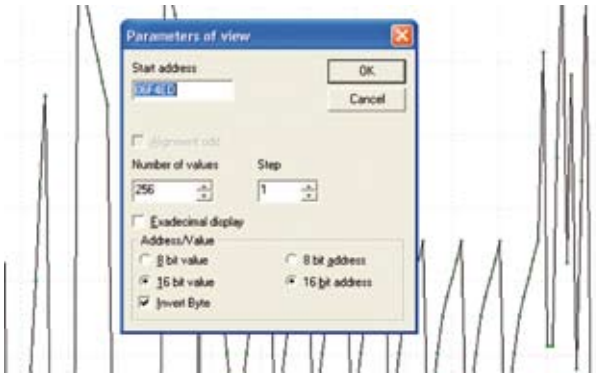
COMPLETE INDEPENDENCE IN YOUR TUNING DEVELOPMENTS

A challenge for your technical skills.

If you aim to be free to search the engine working maps or you feel to be experienced in map searching, **RACE BASIC** is the version for you. It enables independent researches of new information/maps with the use of a wide range of options. As RACE is structured with two RAM memories, the tuner can load one original file in RAM1 and a modified file of an analogous ECU system in RAM2 to find automatically the difference in the parameter sets between two files loaded.

The eprom file is shown in decimal or hexadecimal numbers, 2 D and/or 3-D charts.

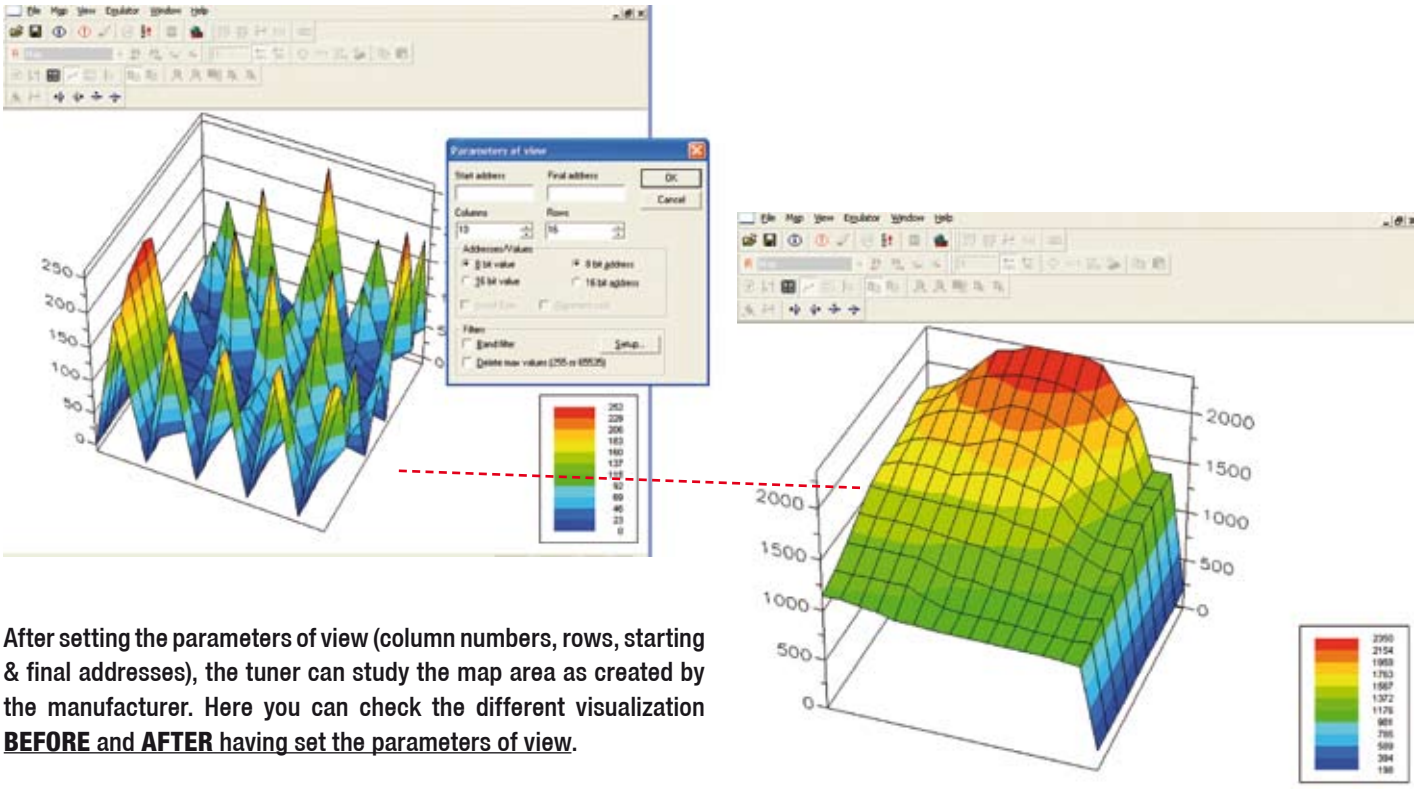
This version of **RACE** requires advanced skills as well as experience in map location and tuning.



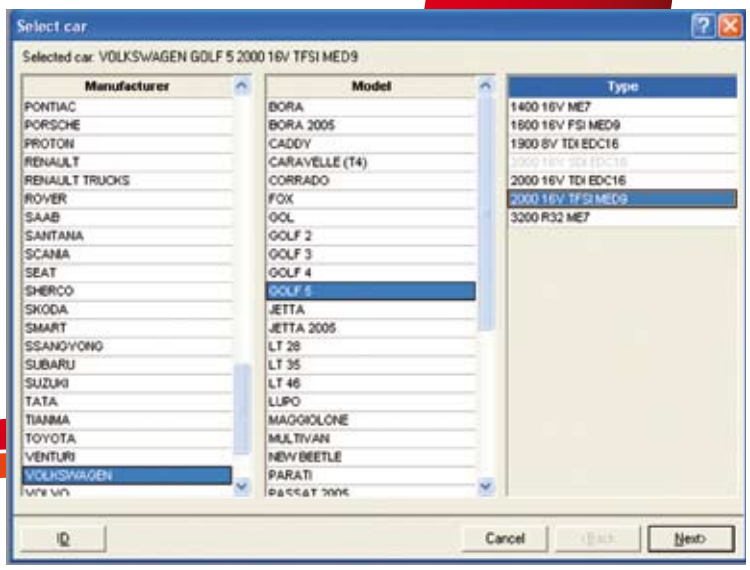
RACE BASIC offers useful tools such as markers for searching significant values s, etc.. It allows the visualization of the map in 8 or 16 bit format (8/16 bit addresses and values) with the possibility of inversion between MSB and LSB, even or odd alignment, printing of the pre-selected areas, etc..

The tuner can select the start address, number of rows and columns so as to have an area identified as map visualized in the correct way.

The content of the eprom file can be visualized also in a 3D chart: “Image Surface” is the helpful function permitting the visualization and analysis of how a specific area has been created by the manufacturer.



After setting the parameters of view (column numbers, rows, starting & final addresses), the tuner can study the map area as created by the manufacturer. Here you can check the different visualization **BEFORE** and **AFTER** having set the parameters of view.

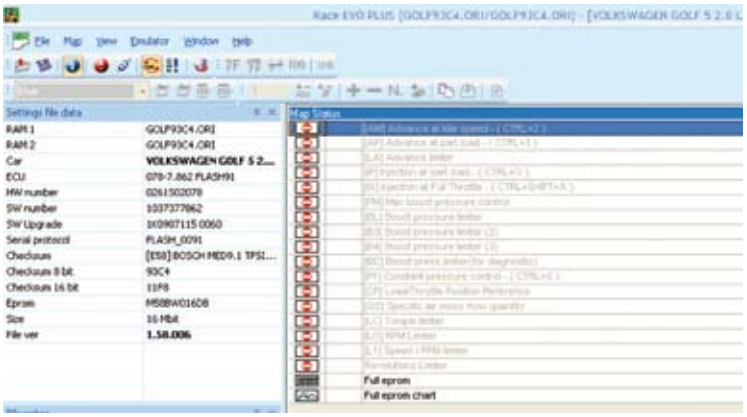


RACE BASIC, with the use of files called "**BASIC FILES**" offers the possibility to create a well structured database and organize your archives of original and modified files according to manufacturer, model and engine type.

This option allows fast and logic searches, avoiding useless and annoying time wasting consequent to an eventual untidy organization of your records.

The use of **BASIC CONFIGURATION FILES** is required in case the tuner (MASTER) wishes to create his own network of Flash Point clients (SLAVE systems).

For more details please consult section NewGENIUS in the next pages.



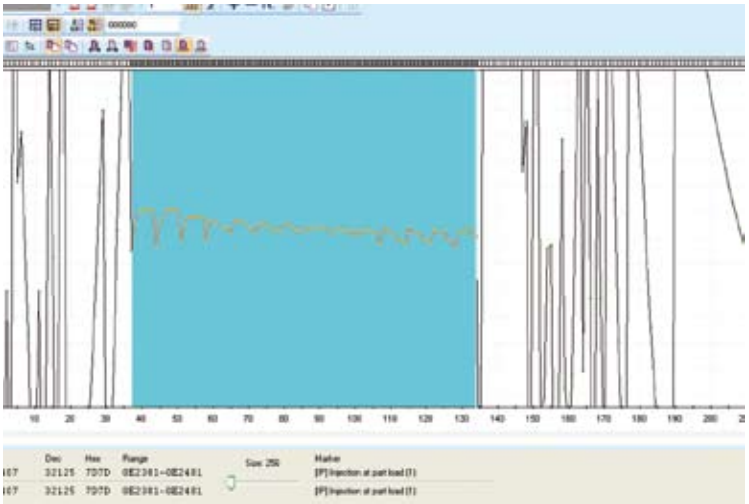
These files also show in grey (but they cannot be activated) the list of maps identified by our Engineers in the corresponding **SETTING FILES** (for **RACE STANDARD** & **RACE PLUS**).

RACE PLUS

RACE STANDARD + RACE BASIC + ADVANCED UTILITIES

the greatest technical exploitation!

RACE PLUS joins the highest reliability and ease in recalibration performance tuning assured by **RACE** STANDARD and the greatest opportunities of independent technical developments of **RACE** BASIC.



The combination of the two versions of **RACE** enables some additional technical features, like the possibility to locate in full Eprom view the maps identified by our Engineers in the setting file, with indication of the name and size of the engine working maps

Moreover, a new upgrade will be released in the near future with the **possibility to add new maps to our setting files!**

NewGENIUS
THE EVOLUTION OF THE OBDII PROGRAMMING!

Dimsport Technology is proud to presents NewGENIUS, an evolution of the previously released Genius.

The first **Touch&Map** tool for serial reading and programming operations of Engine Control Units (ECUs) has been **improved** in its technical features & performances: **a new, more advanced colour touch-screen panel has been integrated and a more powerful microprocessor allows faster operations**.

NewGENIUS allows intuitive use thanks to its **touch-screen panel** and a really user-friendly operative system: reading and programming operations are performed **without any connections to a PC** to offer the greatest independence and avoid slowness or blocking tied to an eventual presence of viruses or, in general, effect of the multitasking nature of the computer.

NewGENIUS TOUCH&MAP

NewGENIUS represents the perfect tool for Top Professionals as well as New Tuners: a direct interface with the vehicle engine via E-OBDII or diagnostic socket.

CAN-BUS, **K/L-line (KWP)**, **J1850** communication protocols are supported to cover all ranges of **CARS, LIGHT COMMERCIAL VEHICLES and TRUCKS**.
A removable 512 Mbyte SD CARD (SECURE DIGITAL), upgradeable up to 4 Gbyte, permits the storage of an almost unlimited number of original/tuned files.

NewGENIUS is a true asset for every tuner thanks to the impossibility to perform wrong operations: detailed instructions appear on the screen and drive the tuner until the car is programmed. Thanks to its new and advanced technology, it has never been so simple to achieve the modified result which every tuner and every customer wish to obtain.

NewGENIUS THEREFORE IS...

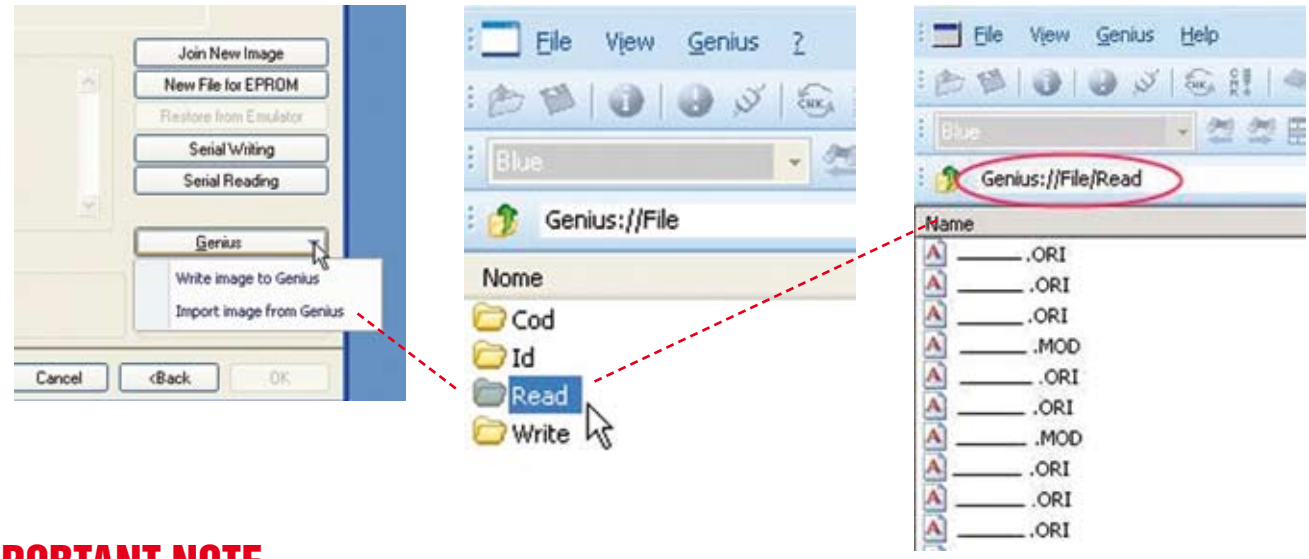
- easy to use thanks to its touch screen panel and to a user-friendly interface
- safe, being a stand alone device working without connection to a personal computer or laptop during the reading and programming operations
- extremely stable during the delicate procedures of reading and programming

The updates/upgrades are available directly through USB connection, after a simple click...

OPERATIVE PROCEDURE

*New*GENIUS is connected to a computer via USB port to allow the direct communication with **RACE** tuning system. A file read via OBDII is easily and quickly copied into our tuning software for the optimization of the engine working parameters.

The same procedure allows to move files back into *New*GENIUS once this operation is completed.



IMPORTANT NOTE

Differently from other systems, *New*GENIUS always verifies the suitability of the tuned file before starting the programming procedure, to avoid blocks of the ECU.

*New*GENIUS FLASH POINT

MASTER/SLAVE GENIUS APPLICATION FOR TUNERS' DEALERS

*New*GENIUS **Flash Point** is the application specifically conceived to support our **TUNERS' NETWORKS** with a MASTER/SLAVE system for CAR and/or TRUCK. The console is supplied with a software program enabling the client to send and receive files (via FTP connection). Built-in system safeguards make it impossible to find, access and reuse the original/customized file on any other vehicle: each file received can be programmed only once. The main operative procedure is the same as per *New*GENIUS.

*My*GENIUS

NEW OBDII CONSOLE FOR CAR'S OWNERS!

*My*GENIUS is the natural evolution of *New*GENIUS: a new console for car's owners, allowing independent serial reading & programming operations.

This versatile tool allows to store and program up to 10 different tuned files, plus the stock software. Contact our sales department for more information about *My*GENIUS.

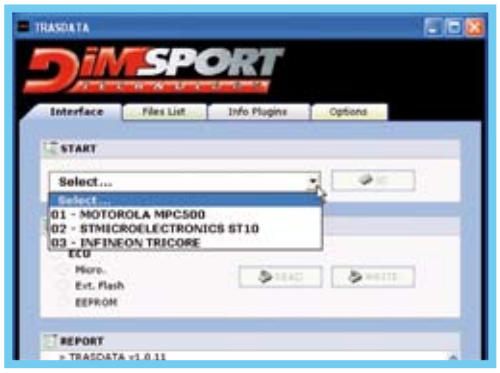
TRASDATA the evolution of the bdm...

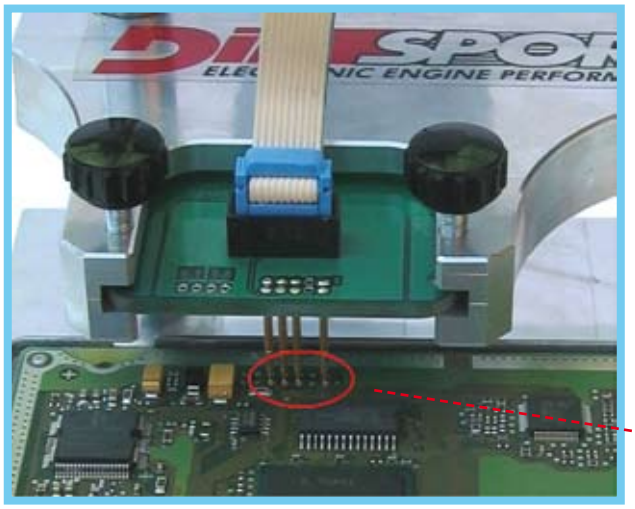
ECU READING/PROGRAMMING TOOL IN BDM MODE

TRASDATA BDM tool, an upgrade of the previously released **555 PRO**, is an independent **BDM** system allowing reading and programming operations of the software stored in ECUs supplied with the following microprocessors (CPU):

- **Motorola MPC 5xx;**
- **Infineon Tricore;**
- **ST Microelectronics ST10**

New applications are constantly implemented to allow tuning interventions on the most advanced technology available in the automotive field (example: MEDC17 Bosch ECUs with locked microprocessor).





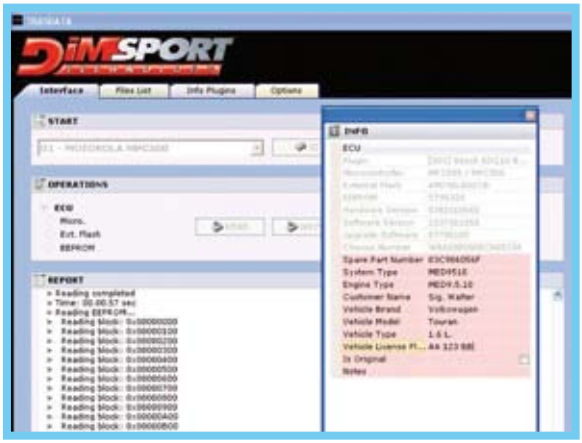
The **BDM** reading and programming operations can be considered an alternative solution to the serial programming method and an evolution of the old conventional programming procedure: this system requires the opening of the ECU and the connection to a specific area (empty).

A specific **metal positioning frame** allows the tuner to avoid soldering and operations on the ECU board: specific boards created according to the ECU type are supplied to connect some metal pins to the specific area identified by our engineers for the reading and programming operations.

TRASDATA BDM tool permits reading and programming operations of the complete ECU software:

- **EPROM or ROM memory;**
- **Microcontroller (CPU)**
- **Serial EEPROM.**

After the initial reading of the ECU software, it is always possible to retrieve the original content even in the case of the ECU blocking, (as example after a wrong checksum recalculation).

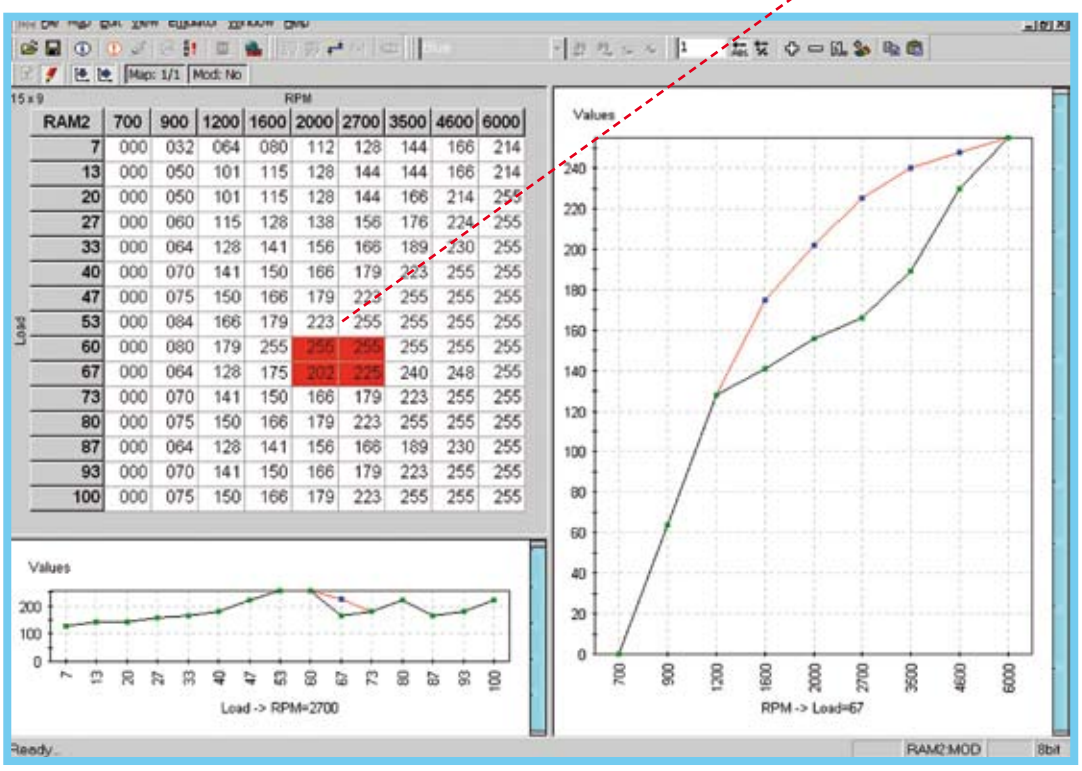


MET16 EPROM EMULATOR

Real time tuning

RACE, as explained, can be utilized for modifying the maps in a really facile, professional way. The development of a "tailor made" modification anyway can be easier as well as faster with **MET16 EPROM EMULATOR**, which enables you to do "real time modification" while the engine is working. This is a shortcut to avoid static modifications, which would imply several successive corrections to get a good result (the tuner would need to test the modification on the car every time to perfect it). MET16 EPROM emulator allows you to obviate the slowness and the loss of precision of the static method.

FUNDAMENTAL HELP: MET16 allows the tuner to **see in real time the area of the maps read by the ECU's microprocessor**.



By connecting the emulator to the ECU board - and the emulator body to a laptop - **it is possible to see a red trace moving across the maps according to RPM and LOAD**.

The red trace gives the knowledge of the parameters to modify , a powerful technical way for high level "tailor made" work. Moreover, by pressing "ESC" on the keyboard, you have the possibility to switch between ORI and MOD files, so as to test and feel the difference while the engine is running.

Do you know a better tool for the development of mod files?

MET16 (MEMORY EMULATOR TRACER) 8/16 bit is provided with 2 RAM memories, 8 Mbit each. It can be used on vehicles in which the ECU is provided with DIL 28/32, PLCC 28/32/44 and PSOP44 Eprom. The connection to the computer is done through PARALLEL port.

MET16 Eprom emulator also allows the tuning of those cars where an algorithm formula protects the original data against further adjustments: the checksum recalculation is achieved after every modification.

MET16 technical features (highlights):

- 8 + 8 Mbit double RAM (RAM 1 and RAM 2).
- RAM1/RAM2 switching processes protected.
- Multiple Trace option supported.
- Connection through PC parallel port.
- DIL/PLCC/PSOP technology supported
- Car/Truck emulation supported
- 8/16 bit logic supported

PROFESSIONAL TRAINING SEMINARS

The training seminar – usually held at our headquarter but also organized at our distributors/partners' headquarters or in our branch companies - is specifically reserved to one company at a time, for two days. No class trainings are offered, just specific seminars expressly organized to face our clients' needs. This is a precious opportunity to allow our customers to learn the technical features and procedures of our RACE system.

This constructive two day training seminar is undoubtedly the best method to exploit your time and develop key answers about procedures, technical features, operative hints, etc.…

TECHNICAL SUPPORT

The seriousness and the reliability of a company is confirmed after the purchase, when the tuner starts using the equipment. To avoid unpleasant situations arising from misunderstandings or wrong proceedings, we provide specific and accurate support by phone, fax and email.

This activity includes also the possibility to have new ECU setting files developed when not included in the databank, or extended versions of already existing setting files for specific purposes. Helpful hints during the recalibration of the car engine parameters are provided as ell as modified file (when needed).

OUR PRESENCE IN THE WORLD

DIMSPORT TECHNOLOGY GROUP takes part in the most important exhibitions in Europe, America and Asia. Our aim is to confirm our responsible presence in front of our clients. Not only the support of branch offices, distributors and partners all over the world is fundamental in our belief, but also the direct participation of our staff.

Autosport Engineering
(Birmingham, UK)

Automechanika Shanghai
(Shanghai, China)

Sema Show Las Vegas
(Las Vegas, USA)

DISCLAIMER

Dimsport Technology supplies programs for PC and tools for road circuit competitive purposes only. Dimsport Technology will be free from any responsibilities with regards to damages and/or injuries, delayed or missed earnings of any kind caused by the use of its products.

Tuners will execute whatsoever intervention on car's electronics with the purchased tools only for road circuit competitive purposes, under their own exclusive responsibility.

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RACE/NEW GENIUS/MY GENIUS
ECU remapping system

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