



Devid Espenschied

PC Analyser OEM Windows

Manual

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Manual for PC Analyser OEM Windows
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1. Introduction

PC Analyser OEM Windows is a Windows based inventory software, which detects all hardware components in a computer system. These are distributed in a prepared and clear form. The program was developed for current hardware and doesn't contain any unnecessary program routines for old hardware below the Intel Pentium 1 generation. Because of this its possible to keep the program size low and still represent all important internal computer data compactly.

Because of the additonal automatic program flow in combination with command line parameters, *PC Analyser OEM Windows* can be used on the one hand for a networkwide inventory, and on the other hand as single user software. For the use in a network the software can generate a detailed description of the network computers, so that the created reports can be used for the documentation of a network. If the software is used in repair centers and production environments, the generated reports can being viewed as final reports for the computer systems.

By the acquisition of the software the complete feature range can be used without reservations. This includes the determination of various serial numbers and MAC addresses, hard drive diagnosis with S.M.A.R.T., complete batch capability as well as many further functions. The license conditional restrictions of the demo version aren't available after the purchase. Another component of the package is this manual, which extensively describes the possibilities of the software.

2. Program Features

In the next list an overview is given about the program features of *PC Analyser OEM Windows*, for that program version which is delivered with this manual. Further details on the individual features are available in chapter 8 (*Program Analysis*).

- program functionality under all x86 based Windows operating systems (Windows 95 up to and including Windows Server 2003 in all product versions)
- determines all processors as well as their speed, FSB and multiplier
- shows information about the BIOS, the mainboard as well as supported specifications
- displays the total amount of installed system memory
- determines all PCI devices including chipset, graphic card(s) as well as sound card(s)
- shows information about the logical as well as physical drives
- checks the hard drive status with the help of S.M.A.R.T.
- shows information about the installed network cards
- shows details about the monitor
- recognizes various serial numbers (such as of the mainboard and hard disks)
- detect the operating system as well as service pack, build number, the Windows installation directory, product key and product ID
- detect the computer name and the corresponding workgroup or domain
- slim program design
- compact and clear reports in text- as well as HTM-format
- full batch capability
- modular structure with different device databases, which are updateable separately
- extensive manual with a detailed description of the product
- german and english program language available in one multilingual package
- additional customizations possible on customer request.

3. System Requirements

The system requirements of *PC Analyser OEM Windows* are quite modest to be startable. Here follows a list with mandatory requirements:

- x86-compatible processor with CUID support (ordinary beginning with later 486 processors, otherwise beginning with the Pentium 1 generation)
- installed Windows operating system beginning with Windows 95 or later
- local administrator rights under the NT-based Windows versions NT4, 2000, XP and 2003
- about 2,1 Mbyte of free hard disk space for program files and documentation
- for the usage in a network appropriately free storage for the created report files (per report file approx. 6-10 Kbytes)

4. Program Files

The following list describes the files, which are delivered with *PC Analyser OEM Windows*.

In principle, the program was developed in a way, that for the program execution the files PCANALYS.EXE, PCANALYS.KEY and PCANALYS.DAT are exclusively necessary. For the Demo version the first file is sufficient. Additional files are optional and contain the device databases as well as the documentation.

File	Needed for startup	Description
pcanalys.exe	yes	program file
pcanalys.key	yes (only Full version)	keyfile with customer data
pcanalys.dat	yes (only Full version)	program internal file
pci.dat	no	PCI device database
mainbrd.dat	no	mainboard device database
eisa.dat	no	monitor device database
handbuch.pdf	no	german manual
manual.pdf	no	english manual
historie.txt	no	german history file
history.txt	no	english history file
lizenz.pdf	no	german license agreement
license.pdf	no	english license agreement
order.txt	no	german and english order details

5. Install / Uninstall

5.1 Install

An installation by using a setup program isn't necessary because *PC Analyser OEM Windows* can be launched by using the PCANALYS.EXE file. No entry is made in the *Add or Remove Programs* menu of the control panel.

The additional files PCANALYS.KEY and PCANALYS.DAT are necessary for the program start of the registered full version and contain customers as well as program internal data. For results as comprehensive as possible the device database files PCI.DAT, MAINBRD.DAT as well as EISA.DAT should be in the same directory in which the program and key file also exists. Without the database files *PC Analyser OEM Windows* can't find any manufacturer and device names from PCI devices, as well as mainboard and monitor names, but is nevertheless startable.

Additional files particularly with the file extensions TXT and PDF are optional and exclusively serve the purpose of the documentation.

In principle it helps to create a program directory, in which all program files should be available.

Under the Windows NT4, 2000, XP and 2003 operating systems an additional possibility exists to manually install the driver, which *PC Analyser OEM Windows* needs to access the hardware (the driver file HWACCESS.SYS is part of PCANALYS.EXE). In principle this will be executed on every program startup. The */INSTALL* command line parameter performs this process without starting the program. Performing this installation process is, however, only necessary if *PC Analyser OEM Windows* encounters startup problems during the installation of these driver.

5.2 Uninstall

Because no setup program is available and therefore not necessary for the installation, *PC Analyser OEM Windows* can easily be removed by deleting all its files.

The hardware driver HWACCESS.SYS, which is installed with every program startup, can be removed manually by using the */UNINSTALL* command line parameter. In principal *PC Analyser OEM Windows* uninstalls the driver automatically and delete the the driver file from the hard disk. That process makes sure, that no program remaining files are left on the hard disk.

If there are problems during the automatic uninstall process or if you want to make sure that the driver is really uninstalled, you should check this manually with the command line parameter */UNINSTALL*.

6. Command Line Parameters

PC Analyser OEM Windows can be started with different command line parameters to perform adjustments regarding the program behaviour and to make additional program functions usable.

In addition a report can be created directly with the command line, at which the graphical program surface is not started. This function is ideal for the use in networks. Following a listing of the start parameters:

<code>/?</code>	Displays an information window with possible command line parameters.
<code>/LANG=Language</code>	Sets the desired language manually (DEU = German, ENG = English). <i>PC Analyser OEM Windows</i> recognizes at the program start in which language Windows is installed. For a German installation this language is also defined as program language. English and foreign-language Windows versions get connected to the English program language. With this parameter the language control can be deactivated and started with a defined language.
<code>/INSTALL</code>	Installs the <i>PC Analyser OEM Windows</i> driver manually (only for Windows NT4/2000/XP/2003), see chapter 5 (<i>Install/Deinstall</i>).
<code>/UNINSTALL</code>	Uninstalls the <i>PC Analyser OEM Windows</i> driver manually (only for Windows NT4/2000/XP/2003) see chapter 5 (<i>Install/Deinstall</i>).
<code>/DEBUG</code>	Activates the debug mode and creates the file <i>Debug.txt</i> in the current directory. This file can be used by the program developer to determine further actions and correct possible program errors.
<code>/FILE=file.txt</code>	Creates a text based report without loading the graphical program surface. If no file name is specified after the equality sign, the report file <i>PCINFO.TXT</i> will be used automatically.
<code>/HTMFILE=file.htm</code>	Creates a htm based report without loading the graphical program surface. If no file name is specified after the equality sign, the report file <i>PCINFO.HTM</i> will be used automatically.

/DMI	Exclusively create a report with DMI data, which are detected with the respectively available DMI version. All other program analyses of <i>PC Analyser OEM Windows</i> are ignored by this. Further details about this are available in chapter 9 (<i>DMI Analysis</i>).
/SOFTWARE	Exclusively create a report with the installed software, which is detected by using the entries in the windows registry. All other program analyses of <i>PC Analyser OEM Windows</i> are ignored by this. Further details about this are available in chapter 10 (<i>Software Analysis</i>).
/MP	Executes exclusively a multiprocessor analysis. All other program analysis of <i>PC Analyser OEM Windows</i> are ignored by this. Further details about this are available in chapter 11 (<i>Multiprocessor Analysis</i>).
/DBINFO	Exclusively create a report, in which the 3 device databases PCI.DAT, MAINBRD.DAT and EISA.DAT are tested for their integrity. In addition some statistic details are shown. All other program analysis of <i>PC Analyser OEM Windows</i> are ignored by this. Further details about this are available in chapter 12 (<i>Database Statistics</i>).
/NOSERCHK	Skips the plausibility check for serial numbers. This checking process classifies serial numbers in valid and invalid serial numbers with the help of predefined dummy numbers. If the system provides for example a serial number of 0123456789 or 0000000000, this number is invalid and therefore not displayed. With this command line parameter the classification can be disabled.

If *PC Analyser OEM Windows* is started without any command line parameters, it detects all specified data described in chapter 8 (*Program Analysis*) and shows them graphical in a list.

7. Program Surface

The program surface of *PC Analyser OEM Windows* consists primarily of a so-called memo field which contains the detected results. This is a classic input field at which the quality to edit data manually was switched off. The text field is centred in the display middle and is suited very good particularly for the representation of structured data.

It was another aspect during the concept work that the letters and numbers must be lined up directly under each other because tables are also used. This happens by use of the font *Courier New*, with whom every letter or every number uses the same pixel width.

The lower window area contains the following described buttons:

Close:

Exit the program.

Save:

Opens the same name window, in which the report format (Text or HTM) and the file name including path can be selected. With the button *Save report* the report will be created.

Print:

Opens a window for the choice of the desired printer with the corresponding parameters and prints the report after pushing the *OK* button.

Search:

Opens the window *Search* in which the memo field can be searched for certain character strings or number combinations.

Line numbers on / Line numbers off:

Enables a number column directly left from the memo field, which assigns a number for every memo line. Through this the results are readable better in some cases.

As soon as the numbering is active, the name of the button is changed to *Line numbers off*. The print function checks this setting ahead of the printing process so that the numbers also appear on a printed A4 page, if it is active in the program.

Program info:

Opens a window with general program details. These includes the program name with version and copyright, the manufacturer logo, as well as links to the internet page and an online contact form. The lower area contains registration details, consists of customer name, the address, the version type (demo version or full version) as well as the customers registration number.

8. Program Analysis

This chapter contains the analysis results represented in the program and explains the individual lines in detail. All analysis groups are separated by separator lines from each other. Several devices within a group do appear directly without any blank lines under each other, but are differentiable with the description text.

All countable analysis points are represented in a numbered form. When for example several processors exist in a system, the first processor is represented by the description CPU 01, the second by CPU 02 and so on. These analysis descriptions do appear in the below chapters as CPU nn -- the nn clarifies the enumeration.

8.1 Header

The so-called header represents the head area of the report. Therefore the first line contains the program name, the current program version as well as a short copyright remark.

The second line contains details which are not analyses in this meaning and appears because of this in a topmost place. At first these details are the name of the licensee, the date and time during the current test time and a short availability check of the device databases PCI.DAT, MAINBRD.DAT and EISA.DAT. If all 3 databases are existing, the word *OK*, otherwise the word *Error* appears.

8.2 Processor

Processor specific details are displayed in this section. The processors available in the system or its physical and logical cores are numbered, beginning at 01.

CPU nn:

This line contains the processor name, the internal frequency as well as in brackets the internal frequency calculated by using the Front Side Bus and the external frequency.

CPU nn: Core/Socket:

Contains the description of the processor core (code name) as well as the used processor socket.

CPU nn: Cache:

Contains the cache sizes for the first, second and, if available, the third level cache. On some processors a separate separation is possible between instruction and data cache. Memory sizes are represented in Kbyte. Some processors as of Intel's Pentium 4 are using the size format of K μ OPs.

CPU nn: SN:

If the mainboard contains an Intel Pentium III processor *PC Analyser OEM Windows* can detect the processor serial number if this function is not deactivated separately in the mainboard BIOS.

8.3 Mainboard / BIOS

In this area details about the mainboard are detected. This concerns on the one hand different data from the DMI area as well as necessary structures, on the other hand the mainboard type as well as details about the used BIOS.

System:

In this line the attribute *Product Name* is detected from the DMI structure type 1 (*System Information*). If the corresponding mainboard BIOS doesn't support any DMI, the data aren't readable or they are incorrect this line doesn't appear in the report.

System SN:

Contains the attribute *Serial Number* from the DMI structure type 1 (*System Information*). If the corresponding mainboard BIOS doesn't support any DMI, the data aren't readable or they are incorrect this line doesn't appear in the report. With the command line parameter */NOSERCHK* the plausibility check can be deactivated for serial numbers.

Case SN:

Contains the attribute *Serial Number* from the DMI structure type 3 (*System Enclosure or Chassis*). If the corresponding mainboard BIOS doesn't support any DMI, the data aren't readable or they are incorrect this line doesn't appear in the report. With the command line parameter */NOSERCHK* the plausibility check can be deactivated for serial numbers.

Mainboard:

In this line *PC Analyser OEM Windows* detects the used mainboard. This process is executed alternatively with two different methods. The first and safest method works on mainboards with AMI and Award BIOS at which the so-called BIOS ID allows conclusions about the mainboard type. For this the BIOS ID is detected and an allocation is produced within the mainboard database MAINBRD.DAT. The file contains the most different BIOS IDs with the corresponding mainboard names.

If the computer neither have an AMI or Award BIOS, or is no mainboard found in the database or the database doesn't exist in the current directory, the mainboard detection is executed with the attributes *Manufacturer* and *Product* from the DMI structure type 2 (*Base Board Information*). If the corresponding mainboard BIOS doesn't support any DMI, the data aren't readable or they are incorrect, the result *unknown* appears in this line.

Mainboard SN:

Contains the attribute *Serial Number* from the DMI structure type 2 (*Base Board Information*). If the corresponding mainboard BIOS doesn't support any DMI, the data aren't readable or they are incorrect this line doesn't appear in the report. With the command line parameter */NOSERCHK* the plausibility check can be deactivated for serial numbers.

BIOS Type:

Here *PC Analyser OEM Windows* detects the type as well as the version of the mainboard BIOS. The recognition contains frequently common BIOS variants like AMI, Award and Phoenix as well as rare available types, such as Acer, NCR, Compaq, SystemSoft and Microid. The BIOS is detected only with corresponding copyright signatures in the system memory.

BIOS Version/Date:

The BIOS version as well as the date are detected in combination with the attributes *BIOS Version* and *BIOS Release Date* from the DMI structure type 0 (*BIOS Information*). Since both details are inserted by the mainboard manufacturer, these version is often the BIOS core version (e.g. Award BIOS 6.00 PG) and in some cases the BIOS flash version (e.g. Revision 1015 Beta 002). *PC Analyser OEM Windows* can't distinguish between these two version types, because no distinction criteria exist.

This problem also applies for the BIOS date, because it provides the real BIOS core date on some mainboards and the BIOS flash date on other mainboards.

BIOS ID:

Here *PC Analyser OEM Windows* reads the BIOS ID on AMI and Award BIOS versions. With this manufacturer identification some BIOS specific details and the used mainboard are recognizable.

8.4 Specifications

This area determines the availability of various specifications which are integrated in current as well as older BIOS versions. At first once the detail whether the respective specification was found is part of the details. If this is the case, the signature follows - that is the string in the system memory which indicates the beginning of the specification. The Version/Revision and the start address within the system memory follows.

Plug and Play:

Plug and Play describes a technique particularly for ISA cards, at which the BIOS takes care about the allocation of card resources like interrupts, DMA channels and I/O addresses. Through this double resource occupancies can be avoided.

SMBIOS:

The System Management BIOS is regarded as a component of DMI and provides a memory area within the BIOS in which DMI data are saved. This saving responsibility is from the mainboard manufacturer and therefore specified during the mainboard design. Some data are detected during the computer startup by the BIOS, others are already firmly implemented (e.g. serial numbers).

DMI:

The Desktop Management Interface was developed by the DMTF (Distributed Management Task Force) with the goal to simplify the PC administration in larger environments. Hardware designed for it must support DMI explicitly so that for example the complete IT infrastructure can be checked ongoingly in the network.

ACPI:

The Advanced Configuration and Power Interface was developed as an extended electrical power economizing technique which allows finer graduations of the electrical power economizing processes than it was possible with APM (Advanced Power Management).

Multiprocessor (MP):

The originally by Intel developed Multiprocessor specification allows the use of several processors in a correspondingly supported system.

8.5 Chipset/Memory

This area contains data about the mainboard chipset and their installed physical system memory.

Chipset:

Here the mainboard based chipset is detected. *PC Analyser OEM Windows* finds at first all PCI devices and filters those which correspond to the PCI class *Host Bridge*.

Because the fact that the chipset name is obtained from the device database PCI.DAT, this file must be available in the current directory.

Total memory:

Here *PC Analyser OEM Windows* detects all memory modules on the mainboard, and adds their capacity to calculate the total memory size. This information is represented compactly in this line. The memory size is represented in MByte.

The detection is based upon the DMI structure types 6 (*Memory Module Information*) as well as 17 (*Memory Device*).

8.6 Graphic

In this section *PC Analyser OEM Windows* searches all PCI devices available in the system and filters those which correspond to the PCI class *VGA Compatible Controller*. The AGP bus in addition is searched for available graphics cards. The lower area contains the recognized monitors which are assigned to the graphic cards connected to it.

In principle the software tries to identify the name of the graphic card as well as the containing graphic chipset. Especially on mainboard chipsets with an integrated graphic card this possibility doesn't exist, so that in this case the type of the graphic card is *OnBoard*, and followed by this the used graphic chipset is determined. At the same time cases appear frequently, in which the graphic card (detection with SubVendor and SubDevice ID) is unknown, but the corresponding graphic chipset (detection with Vendor ID and Device ID) is known. In these cases we need a report to enhance the PCI database correspondingly.

The details are displayed in a numbered representation, where the first found graphic card uses the name *Graphic 01* and the first found monitor uses the name *Monitor 01*.

Graphic nn: Card:

Describes the name of the respective graphic card. The word *OnBoard* appears in this line, if the graphic card is a part of the mainboard chipset.

Graphic nn: Chipset:

Here appears the name of the used graphic chipset. If the chipset isn't detectable, the word *unknown* is shown in this line.

Graphic nn: Memory:

Shows the available graphic memory. Please note that graphic cards have in principle their own memory directly on the board, Onboard graphic cards, however, often reserve a memory area of the system memory defined in the BIOS (Shared Graphics RAM). Unfortunately, no possibility exists to recognize this reserved memory area explicitly. The size of the shared memory used by the graphic card remains unconsidered in the area of *Chipset/Total memory*, so the size of the complete RAM is always displayed in the chipset area, even if the graphic card has reserved a part of it for itself.

Memory sizes are represented in Mbyte.

Monitor nn: Model:

After the 7-digit monitor ID was detected, which consists of the 3-digit manufacturer as well as the 4-digit device attributes, the determination of the monitor names follows based on this ID within the device database EISA.DAT. If this entry isn't found in the database or the database doesn't exist in the current directory, *PC Analyser OEM Windows* tries to detect the monitor name from the Windows registration.

The 7-digit monitor ID is displayed directly after the model name in brackets.

Monitor nn: Serial Number:

The monitor serial number must have been recognized by Windows to be showable within *PC Analyser OEM Windows*. With the command line start parameter */NOSERCHK* the plausibility check can be deactivated for serial numbers.

If Windows can't recognize the serial number or the serial number includes suspicious data according to the plausibility check, this line is not displayed.

Monitor nn: Manufacturing:

If detectable, *PC Analyser OEM Windows* displays in this line the production calendar week as well as the production year. Both details are shown separated by a slash from each other.

8.7 Sound

In this section *PC Analyser OEM Windows* searches all PCI devices available in the system and filters those which correspond to the PCI class *Audio Device*.

In general the software tries to identify the name of the sound card as well as the corresponding sound chipset. Especially on mainboard chipsets with an integrated sound controller this possibility doesn't exist, so that in this case the type of the sound card is *OnBoard*, and followed by this the used sound card chipset is determined.

The details are displayed in a numbered representation, where the first found sound card get the name *Sound 01*.

Sound nn: Card:

Describes the name of the respective sound card. The word *OnBoard* appears in this line, if the sound device is a part of the mainboard chipset.

Sound nn: Chipset:

Here appears the name of the used sound card chipset. If the chipset isn't detectable, the word *unknown* is shown in this line.

8.8 Operating System

In this section different data are summarized for the used operating system. Herefore *PC Analyser OEM Windows* recognizes all Windows versions under which the program is itself operational (beginning with Windows 95).

Operating System:

Describes the type of the used operating system. The variants of an operating system also are evaluated (e.g. Windows 2000 Professional or Windows XP Professional N Edition).

Version / SP / Build:

Contain different version details which are part of the used operating system. These details include the internal operating system version (e.g. 5.0 under Windows 2000 or 5.1 under Windows XP), the used Service Pack (e.g. 4.0) as well as the internal build number (e.g. 2600). The build number is frequently used for the distinction of beta versions of an operating system.

Product Key:

During the operating system installation the product key is entered, which represents the acquired operating system licence. This key consists in general of 5 blocks with numbers as well as letters. Since the product key is encoded in the system after the installation process and shall not be accessible for everybody, only the product ID is always displayed in Windows information windows.

PC Analyser OEM Windows displays the complete product key in this line.

Product ID:

The product ID which is displayed ongoingly within Windows instead of the product key is calculated from the product key entered during the operating system installation. Here the product ID is detected and displayed.

Operating System Path:

Describe the directory in which the Windows version is installed. This directory is specified during the operating system installation and can only be changed by a new operating system installation.

Computer Name:

Defines a name description that the computer represents in the network. This name is changeable in the Windows System Properties.

Domain/Workgroup:

Describe the domain or workgroup to which the respective computer is assigned. The workgroup is used generally for computers without network connection and in smaller networks, while the domain is used in larger Microsoft networks. This name is changeable in the Windows System Properties.

8.9 Logical Drives

PC Analyser OEM Windows detects in this section all available drive letters, which are accessible by Windows.

The details to every logical drive are displayed into tabular form. An explanation for the individual table columns is listed followingly.

Drv:

Describes the corresponding drive letter of the logical drive (e.g. C:), on which Windows and the software are being able to access.

Description:

Shows the description or the logical name of the respective drive. This text can arbitrarily be changed within Windows.

Capacity:

In combination with operating system functions *PC Analyser OEM Windows* detects the total capacity of the logical drive. The detail of the capacity is represented in Mbyte.

Free:

Shows the free capacity of the logical drive. This detail is represented in Mbyte, too.

Type:

Describes the type of the logical drive. The software can detect the types HDD, CD-ROM, Remote (e.g. Network Sharing), RAMDisk as well as changeable media (such as floppy disks, MO drives and USB sticks).

Filesystem/Source:

Here the used file system is detected, if the corresponding drive type is HDD or an available media within floppy drives, CD-/DVD drives and changable media drives. Valid types are for example FAT, FAT32, NTFS, CDFS and UDF. For the type Remote the device sharing is detected as UNC path configured on the corresponding server.

8.10 Physical Drives

In this area *PC Analyser OEM Windows* detects all available physical drives. To be able to get the connected devices, the necessary adapter drivers must be installed and activated within the operating system. This process is executed mostly during the operating system installation.

Under the operating systems Windows 95, 98 as well as ME a problem can occur, which has an effect on the detection of physical drive details. For this the system file *SMARTVSD.VXD* must exist in the directory *Windows\system\iosubsys* during the Windows start process. If this is the case, the file is loaded during the Windows start and physical drive details are detectable by *PC Analyser OEM Windows*. At some Windows installations, particularly at Windows 98, this file exists in the directory *Windows\system* and is therefore not loaded during the Windows start. *PC Analyser OEM Windows* checks during the program start whether the file is available and loaded in the correct directory. If the file exists in another directory, *PC Analyser OEM Windows* can copy it after your confirmation into the correct directory. In this case a Windows restart would be necessary to load the file.

Another architecture and because of this another way for the data determination is processed on Windows NT based operating systems (therefore NT4, 2000, XP and 2003). No further actions are necessary here.

The details to every physical drive are displayed into tabular form. An explanation for the individual table columns is listed followingly.

Drv:

Any found device is numbered and represented by a two-digit number. The first device starts at 01.

Interface:

PC Analyser OEM Windows distinguishes here between the types of the host adapter. Possible values are for example IDE or SCSI.

SCSI-ID:

The determination of the IDE as well as SCSI drives is executed with SCSI commands on Windows NT based systems, which is explainable with the operating system architecture. The SCSI ID has the following meaning:

Syntax: aa | bb | cc | dd

aa	Indicates the host adapter on which the device was found. The numbering is made by the operating system.
bb	Indicates the bus number on the host adapter.
cc	Indicates the device ID, under which the device is accessed on the host adapter.
dd	Indicates the Logical Unit (LUN) within the device, which is used on some multifunction devices.

Type:

Describes the type of the physical drive. *PC Analyser OEM Windows* distinguishes here between 10 different types, e.g. HDD or CD-ROM.

Capacity:

If a device should offer the possibility of the data storage, the complete capacity can be determined. On changeable media (e.g. floppy drives, MO drives and USB sticks) this detection process works only if a media is inserted.

SN:

For some devices the device serial number can be detected. By this number a device is identifiable clearly and this information is useable to claim guarantee rights.

SMART:

Modern hard disks contain a technique, which is described as *Self Monitoring And Reporting Technology (SMART)*. A device with this technology monitors the operational state of the hard disk standalonly and reports damages in advance as well as perhaps occurring. If the SMART option is activated in the mainboard BIOS, the BIOS can report a possible damage on time and warn the user of a possible defect or failure of the device.

Since Windows also records these data, *PC Analyser OEM Windows* shows here, whether the drive status is all right (*OK*), or if problems can be expected or already occur (*Error*).

Description:

Here the device name, and if available also the manufacturer name, is detected and listed.

8.11 PCI Devices

In this section *PC Analyser OEM Windows* searches the complete PCI bus and lists the found devices into tabular form. An explanation for the individual table columns is listed followingly.

Bus:

Describes the bus number on which the PCI device is located. Current mainboards particularly with AGP and PCI Express can have several bus systems. The numbering starts at 0, because the PCI bus starts with bus 0 at normal mainboards.

AGP graphics cards represent an exception because the AGP bus is regarded as a PCI bus technically. An AGP graphic card could be located for example on bus 01.

Dev:

A device is identified with its Device ID within a bus.

Func:

A single PCI device can have several different functions, which occurs particularly at multifunction devices (e.g. within of chipsets).

Vendor:

Every PCI device manufacturer gets a so-called Vendor ID from the PCI SIG, which identifies the manufacturer clearly as 16 bit value. This number is displayed here in the hexadecimal format.

Device:

While the Vendor ID is helpful to detect the device manufacturer and is assigned by the PCI SIG, every manufacturer can assign own Device IDs at free will. This makes sense to distinguish a different device from one manufacturer of each other. The Device ID is listed here in the hexadecimal format.

SubVendor:

Every manufacturer can establish two sub-IDs in addition to the normal Vendor and Device ID, which make an even more exact device distinction possible. Herefore the SubVendor and SubDevice ID exists. Both IDs are comparably with the normal Vendor and Device ID and 16 bits wide.

The assigning process of these IDs makes sense for graphic cards for example, which is sold as a PCI and AGP variant. With a different SubDevice ID the distinction could hereby executed.

SubDevice:

Describes the sub-ID for differentiating a different PCI device of a manufacturer.

Description:

Describes the name of the respective PCI device which is selected with the Vendor ID, Device ID, SubVendor ID and SubDevice ID into combination with the device database PCI.DAT. If the database doesn't exist in the current directory, three separators are listed here (---).

8.12 Network Cards

In this area *PC Analyser OEM Windows* detects all network cards installed within the operating system. For this a corresponding driver must mandatorily be installed for the respective cards so that they are recognizeable.

All detectable network cards are listed starting with NIC 01.

Name:

The name of the device is displayed here. This name comes usually from the card driver and doesn't always describe a device very clear.

Type:

Here the program recognize the network type of the corresponding network card. Possible values are for example Ethernet, TokenRing or FDDI.

MAC:

Every network card has a worldwide clear device identification. This MAC address (*Media Access Control*) consists of several areas which are allocated on the one hand worldwide once and on the other hand randomizable allocated from every single manufacturer individually.

PC Analyser OEM Windows shows the MAC address subdividedly into blocks, containing respectively by 2 characters (based on numbers and letters) as well as a separator.

DHCP:

DHCP stands for *Dynamic Host Configuration Protocol* and describes a far common protocol with which clients can obtain IP addresses from a DHCP server within a network automatically. These so-called dynamical IP addresses can be different on any network login, where as opposite the static IP addresses are configured firmly within the network configuration.

Here *PC Analyser OEM Windows* detects, whether DHCP is active for the corresponding network card.

IP:

IP stands for *Internet Protocol* and describes a worldwide protocol for data transfers within intranets and the internet. Data are packed with a header in data packets, transported over several networks to the receiver, and again unpacked or put together by the receivers network card.

In this area *PC Analyser OEM Windows* detects the current IP address for the corresponding network card, which can be either static or dynamic (for more details please see above in the area DHCP).

The address is listed in the format AAA.BBB.CCC.DDD. Directly after the address the subnet mask follows, which is used frequently to separate IP networks from each other.

GW:

The so-called Gateway represents a hardware device or a software solution which can connect several networks or subnetworks with each other. Hardware solutions for it can be routers, for example. As software solutions so-called software routers exists, which are installed software solutions and pass the data packets on to predefined addresses.

Fundamentally every Gateway is accessible about an IP-address which is individual configurable for any single network card installed in the client.

PC Analyser OEM Windows detects for the corresponding network card, whether a Gateway is registered or not. The address is listed in the format AAA.BBB.CCC.DDD.

8.13 Printers

PC Analyser OEM Windows detects in this area all in the system installed printers as well as devices which are installed as a printer. Also virtual fax machines (e.g. based on *FRITZ!Fax* or *Microsoft Fax*) and PDF printer containers are included. The PDF printer containers are used to save printed documents as a PDF document directly from applications.

An explanation for the individual table columns is listed followingly.

Printer name:

As the printer name the name under which the printer is mentioned by applications is detected. This name is used by Windows for the identification of the printer.

Driver:

The driver name delivers interesting conclusions on what really is behind the printer device. Names like *HP LaserJet 1200 Series PCL 5e* show that a real printer is connected, whereas names like *Adobe PDF Converter* imply the connection of a virtual printer device.

Port:

This area delivers the connection type at which the printer is installed. Printers are usually connected at the parallel interface and that would deliver *LPT1* here. Other printers connected to USB ports deliver synonymously *DOT4_00X*. The X stands for the number of the USB printer and is counted up per 1 for every port. PDF printers contain at this point frequently the predefined output directory of the to be created PDF file.

9. DMI Analysis

PC Analyser OEM Windows uses for the determination of internal data frequently the DMI data (*Desktop Management Interface*), what is indicated in this manual at the appropriate places. Because that information doesn't provide all available DMI data, the additional command line parameter */DMI* exclusively shows extensive DMI information.

For this the conventional report format is disabled and the results displayed as far as the implemented DMI specification. Translations in any case are disabled, so that the data are further workable independently of different language versions of the software as well as the operating system.

The DMI analysis work as well for the automatic report, which can be enabled with the command line parameters */FILE=file.txt* and */HTMFILE=file.htm* in connection with */DMI*. For this combination of the command line parameters the DMI information will be diverted into the named report file.

The representation of the data starts with the header information, which is detected for the SMBIOS and DMI structures. Directly after this the evaluation of the individual DMI structure types is displayed.

You should note, that the DMI information doesn't have to be always correct, because they are partly detected by the BIOS and partly programmed by the mainboard manufacturer. If the detection is done by the BIOS, maybe older BIOS versions can't recognize the newest processors and their features correctly or recognize them wrongly. In such case a BIOS update is recommended if it is provided by the mainboard manufacturer.

10. Software Analysis

In many cases it is important, which software is installed on a target system so that further steps can be initialized based on it. With the command line parameter */SOFTWARE* *PC Analyser OEM Windows* detects the installed software by using the Windows registry.

For this the conventional report format is disabled and the results are displayed directly under each other in list form. Translations or interventions are disabled in any case, so that the data are further workable independently of different language versions of the software as well as the operating system.

The Software analysis work as well for the automatic report, which can be enabled with the command line parameters */FILE=file.txt* and */HTMFILE=file.htm* in connection with */SOFTWARE*. For this combination of the command line parameters the Software information will be diverted into the named report file.

The representation of the data starts with a small header and after that the numbered software names. 001 is used as start value for the numbering. According to a colon the name of the detected software is displayed.

11. Multiprocessor Analysis

If several processors do exist in a system, the implementation is compulsorily based on Intel's multiprocessor specification. This is implemented also in single processor systems lately. A main task is assigned to the BIOS, which contains the specification and have to initialize all processors during the *Power On Self Test* (POST). *PC Analyser OEM Windows* can evaluate these data structures and shows them sorted with the command line parameter */MP*.

For this the conventional report format is disabled and the results are displayed directly under each other in list form. Translations or interventions are disabled in any case, so that the data are further workable independently of different language versions of the software as well as the operating system.

The evaluation of the multiprocessor specification work as well for the automatic report, which can be enabled with the command line parameters */FILE=file.txt* and */HTMFILE=file.htm* in connection with */MP*. For this combination of the command line parameters the specification data will be divert into the named report file.

The representation of the data starts with a header, which contains general checksum and version values. After that the found data tables within the specification are evaluated, which can exists depending on the system as the groups *Processor*, *Bus*, *I/O APIC*, *I/O Interrupt Assignment*, *Local Interrupt Assignment*, *System Address Space Mapping*, *Bus Hierarchy* and *Compatibility Bus Address Space Modifier*.

12. Database Statistics

This function was developed to check the consistency of the device databases *EISA.DAT*, *PCI.DAT* and *MAINBRD.DAT* and show in additional some statistic details. With the command line parameter */DBINFO* the program executes some extensive tests of the device databases, if they are available in the same directory as the program file *PCANALYS.EXE*.

For this the conventional report format is disabled and the results are displayed directly under each other in list form. The database tests and statistic details work as well for the automatic report, which can be enabled with the command line parameters */FILE=file.txt* and */HTMFILE=file.htm* in connection with */DBINFO*. For this combination of the command line parameters the detected check results will be divert into the named report file.

The header includes some general statistics data in column form, which are the *database name*, the *type*, the *availability field*, the *database version*, the *publication date* of the database as well as the *database size*. Directly after this an integrity check will be processed for every available database, which contains the areas *size check*, *header validation*, *read check*, *table integrity* and the *total status*. Under every block of the integrity check the counted entries for every database are shown. These numbers are very different for every database.

The last line of this window contains the *complete status of all databases* and is calculated from the integrity checks of the individual databases.

13. Differences between the Demo version and the Full version

While the Demo version has a restricted feature range and is designed primarily for judging the own requirements, the full version contains all program functions mentioned in this manual.

The Full version is on the one hand therefore interesting for administrators who needs a stock-taking of a network, on the other hand *PC Analyser OEM Windows* is an ideal software for the analysis of end consumer PCs. The essential point at the development always lay on a very compact software with results which shall not in general exceed an A4 page. A printed report reflects the complete hardware configuration and is very structuredly but under no circumstances clumsily to read at the same time.

With the registration you don't get only full access to the complete program features, but support simultaneously the further development of the program. That is very important because of the ongoing market change.

The following table contains the differences between Demo and Full version.

Program function	Demo version	Full version
Detection of serial numbers (e.g. for CPU, Mainboard and Hard drives)	no	yes
Detection of MAC addresses from available network cards	no	yes
Detection of the Windows Product Key and the Product ID	no	yes
Detection of S.M.A.R.T. drive data	no	yes
Evaluation of the DMI data (Desktop Management Interface)	no	yes
Detection of the installed software	no	yes
Execution of a multiprocessor analysis	no	yes
Database statistics as well as integrity checks	no	yes
Possibility to save and print report results	no	yes
Additional command line parameters (e.g. for the batch mode)	no	yes
Program startup only possible from a local drive	yes	no
Demo Details window	yes	no

14. Example Report

PC Analyser OEM Windows v1.8.0 (C) 2003-2006 Devid Espenschied Software
License/Date/DB: Devid Espenschied / 2006/05/04 16:08:58 / OK

CPU 01 : Intel Pentium 4HT 630, 2992 MHz (3000,00 MHz = 15,0 x 200,00 MHz)
CPU 01: Core/Socket : Prescott / LGA 775
CPU 01: Cache : L1: 12 K μ OPs + 16 KB, L2: 2048 KB, L3: 0 KB
CPU 02 : Intel Pentium 4HT 630, 2992 MHz (3000,00 MHz = 15,0 x 200,00 MHz)
CPU 02: Core/Socket : Prescott / LGA 775
CPU 02: Cache : L1: 12 K μ OPs + 16 KB, L2: 2048 KB, L3: 0 KB

Mainboard : Gigabyte GA-8I915GMF
BIOS Type : Award Modular BIOS v6.00PG
BIOS Version/Date : F8 / 09/27/2005
BIOS ID : 09/27/2005-i915G-6A79DG09C-00

Plug and Play : yes, Signature: \$PnP, Version: 1.0, Address: F000h:B850h
SMBIOS : yes, Signature: _SM_, Version: 2.3, Address: F000h:0CE0h
DMI : yes, Signature: _DMI_, Revision: 2.3, Address: F000h:0CF0h
ACPI : yes, Signature: RSD PTR, Revision: 1.0, Address: F000h:6780h
Multiprocessor (MP) : yes, Signature: _MP_, Revision: 1.4, Address: F000h:4E20h

Chipset : Intel 915G Grantsdale CPU-to-I/O Controller
Total memory : 512 MByte, 1 Module

Graphic 01: Card : OnBoard
Graphic 01: Chipset : Intel, 82915G/GV/910GL Express Chipset Family Graphics Controller
Graphic 01: Memory : 128 MB
Graphic 01: Monitor 01: Model : BenQ FP931 (BNQ7670)
Graphic 01: Monitor 01: Manufacturing: Week 40 / Year 2004

Sound 01: Card : OnBoard
Sound 01: Chipset : Intel, 82801FB High Definition Audio Controller

Operating System : Windows XP Professional N Edition
Version / SP / Build : 5.1 / 2.0 / 2600
Product Key : XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
Product ID : XXXXX-XXX-XXXXXXXX-XXXXX
Operating System Path : E:\WINDOWS
Computer Name : WORKPC
Domain/Workgroup : WORKGROUP

Drv Description	Capacity	Free	Type	Filesystem/Source
A: ---	0 MByte	0 MByte	Removable	---
D: ---	0 MByte	0 MByte	CD-ROM	---
E: HardDrive	49999 MByte	19042 MByte	HDD	NTFS

Drv Interface	SCSI-ID	Type	Capacity	SN	SMART	Description
01 IDE	0 0 0 0	HDD	114470 MByte	XXXXXXXXXX	OK	ST3120827AS
02 IDE	1 0 0 0	DVD	696 MByte	n/a	---	_NEC ND-3550A

Bus	Dev	Func	Vendor	Device	SubVendor	SubDevice	Description
(00	00	00)	8086h	2580h	1458h	2580h	Intel 915G Grantsdale CPU-to-I/O Ctrl.
(00	02	00)	8086h	2582h	1458h	2582h	Intel 82915G/GV/910GL Express Chipset
(00	1B	00)	8086h	2668h	1458h	AF12h	Intel 82801FB High Definition Audio
(00	1D	00)	8086h	2658h	1458h	2658h	Intel 82801FB USB UHCI Controller #1
(00	1E	00)	8086h	244Eh	0000h	0000h	Intel 82801EB, Hub Interface-to-PCI
(00	1F	00)	8086h	2640h	0000h	0000h	Intel 82801FB/FR LPC Controller
(00	1F	02)	8086h	2651h	1458h	2651h	Intel 82801FB/FW SATA Controller

NIC 01: Name : Realtek RTL8169/8110 Family Gigabit Ethernet NIC - Paketplaner-Miniport
NIC 01: Type/MAC: Type: Ethernet, MAC : XX-XX-XX-XX-XX-XX
NIC 01: IP : DHCP : no, IP : 192.168.5.102/255.255.255.0, GW : 192.168.5.254

Printer name	Driver	Port
HP LaserJet 1200 Series PCL 5e	HP LaserJet 1200 Series PCL 5e	LPT1: