Global Vision Co., Ltd.

WINCOR
NIXDORF

BEETLE /i8A Modular POS System

Operating Manual

Global Vision Co., Ltd.

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BEETLE /i8A

Modular POS System

Operating Manual

Edition Feb 2011

Contents

Manufacturers Certification and notes

The device complies with the requirements of the EEC directive 2004/108/EC with regard to 'Electromagnetic compatibility" and 2006/95/EC "Low Voltage Directive".

Tested Safety

In addition, the BEETLE has received the UL symbol and cUL symbol.

FCC-Class A Declaration

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not in-stalled and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Le présent appareil numérique ne génère pas de bruits radioélectriques dépassant les limites applicable aux appareils numériques de la "Class A" prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

BSMI (EMC for Taiwan)

The device complies with the requirements of the BSMI (Bureau of Standards, Metrology and Inspection, Ministry of Economic Affairs) directive CNS14348 with regard to "Electromagnetic compatibility" with the limits for a Class A product.

警告使用者
這是甲類的資訊產品, 在居住的環境使用時, 可能會造成射頻
干擾, 在這種情況下, 使用者會被要求採取某些適當的對策.

Important notes

The Modular POS system BEETLE /i8A conform to the current safety standards for data processing equipment.

■ If this device is taken from a cold environment into the operating room, moisture condensation may form. The device must be absolutely dry before being put into service; an acclimatization period of at least two hours must therefore be observed.

■ This device is equipped with a safety-tested power cable and may be connected only to a prescribed grounded-contact power socket.

■ When setting up the device, ensure that the power socket on the device and the grounded-contact power socket are easily accessible.

■ To disconnect the device from the supply voltage completely, switch off the device and disconnect the power plug.

■ Ensure that no foreign objects (e.g. office clips) find their way into the device, as this may lead to electric shocks or short-circuits.

■ Never plug in or unplug data communication lines during thunderstorms.

■ Protect devices from vibrations, dust, moisture and heat.

■ Always dispose of used parts, such as batteries, in an environmentally safe manner.

■ The lithium battery must be disposed of in accordance with local regulations for special waste.

■ In emergencies (e.g. damaged housing or damaged power cable, penetration by liquids or foreign bodies), the device must be switched off immediately, the power plug disconnected and the Customer Service of Wincor Nixdorf (WN) or your dealer must be notified.

■ The device may only be repaired by authorized qualified personnel. Unauthorized opening of the device and inexpertly carried-out repairs may not only seriously jeopardize the safety of the user, but also cancel all warranty and liability agreements.

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- You should connect your BEETLE or other IT-devices only to power supply systems with separately guided protective earth conductor (PE). This kind of electricity system is known as TN-S network. Do not use PEN conductors!

- Please also observe the recommendations of the norm DIN VDE 0100, Part 540, Appendix C2 as well as EN50174-2, §5.4.3. Thus, you can help to avoid possible malfunctions.

- You can connect or disconnect USB devices during operation of your BEETLE, provided that these devices comply with the specifications according to usb.org.

  Other peripheral devices with higher power requirement (such as Powered USB printer) should be connected to or disconnected from your BEETLE system only after the BEETLE has been switched off.

Power Cord Selection

If power cord is not provided with the display, user has to ensure that a certified power cord is used as required by the Safety Regulation of the country.

Countries	Safety Approvals
USA	UL
Canada	CSA
Germany	VDE
Japan	PSE
Taiwan	BSMI
China	CCC

For other countries not mentioned in the above list, please check with the local authority.

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Introduction

The BEETLE /i8A is a low-cost low power POS system that can deliver the necessary performance for the POS application. The system features an INTEL 45nm mobile processor with excellent performance/price and performance/power ratios that promise to lower the total cost of ownership.

About this manual

This manual describes the Modular POS system BEETLE /i8A.

This documentation is intended to help you to work with the POS system and to serve as a reference work. The detailed table of contents helps you find the desired information quickly and easily.

NOTE   *Notes call attention to important information.*

⚠ CAUTION   *Cautions are included to help you avoid damaging hardware or losing data.*

⚠ WARNING   *Warnings indicate conditions that, if not observed, can cause personal injury.*

The type and scope of application programs depend on the customer's own selection; therefore, software will not be discussed further in this manual.

Separate manuals are included in the scope of the connectable peripherals. For this reason, a more detailed description of these devices will not be provided here. For more information see the relevant manuals.

Care of the BEETLE /i8A

 WARNING

Clean your BEETLE /i8A at regular intervals with a suitable plastic-surface cleaner. Make sure that the power plug is disconnected, connector cables are unplugged and that no liquid finds its way into the device. The glass surface of your Touch Screen should be cleaned with a mild, commercially available glass cleaning product. All pH neutral materials (pH 6 to 8) are to be used for cleaning purposes.

Recycling the BEETLE /i8A

 Environmental protection does not begin when time comes to dispose of the BEETLE; it begins with the manufacturer. This product was designed according to our internal norm "Environmental conscious product design and development"

The Modular BEETLE /i8A System is manufactured without the use of CFCs and CCHS and is produced mainly from reusable components and materials.

The processed plastics can, for the most part, be recycled. Even the precious metals can be recovered, thus saving energy and costly raw materials.

Please do not stick labels onto plastic case parts. This would help us to re-use components and material.

You can protect our environment by switching on your equipment only when it is actually needed. If possible, even avoid the stand-by-mode as this wastes energy, too. Also switch your equipment off when you take a longer break or finish your work.

There are still some parts that are not reusable. Wincor Nixdorf guarantees the environmentally safe disposal of these parts in a Recycling Center, which is certified pursuant to ISO 9001.

So don't simply throw your BEETLE POS system on the scrap heap when it has served its time, but take advantage of the environmentally smart, up-to-date recycling methods!

Please contact your competent branch office for information on how to return and re-use devices and disposable materials.

Wincor Nixdorf is always ready to answer any questions you may have about our environmental protection policies. We look forward to your message.

Warranty

Wincor Nixdorf guarantees a limited warranty engagement for 12 months beginning with the date of delivery. This warranty engagement covers all those damages which occur despite a normal use of the product.

Damages because of

- ■ improper or insufficient maintenance,
- ■ improper use of the product or unauthorized modifications of the product,
- ■ inadequate location or surroundings

will not be covered by the warranty.

All parts of the product which are subject to wear and tear are not included in the warranty engagement.

Please order spare parts at the Wincor Nixdorf customer service.

BEETLE /i8A – the modular POS System

Overview

You can connect a variety of peripherals to your modular POS system BEETLE /i8A and thus implement a wide range of expansion stages. You can connect a 4-line or 2-line alphanumeric customer display and cashier display. Alternatively, you can connect flat screens.

You can

- use various types of scanners such as distance, touch or stationary scanners,

- use scales and scanner scales (please take into account the official certification regulations),

- connect various printers,

- use POS keyboards,

- use different types of cash drawers (*via printer's cash drawer port*)

- connect a monitor,

- integrate the BEETLE /i8A in a network and

- upgrade the BEETLE /i8A, since it can accommodate one PCI card.

This means that the BEETLE /i8A can meet your requirements at all times, without having to exchange the complete system for a new one, thus saving you time and money.

Before switching on the System

Unpacking and checking the System

Unpack the parts and check to see whether the delivery matches the information on the delivery note.

The carton contains the basic unit and a country-specific accessories kit. Some ordered composition may be installed.

Should you notice any transport damages or discrepancies between package contents and delivery ticket or functional defects please inform your contracting parties or the branch office of Wincor Nixdorf immediately. Please indicate the number of your delivery ticket and delivery ticket position and serial numbers of the respective devices.

The serial numbers can be found on the labels which are located at the bottom side of the housing.

✍ NOTE

Transport the device only in its original packaging (to protect it against impact and shock).

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Setting up the device

Set up the BEETLE/i8A system where it will not be exposed to extreme environmental conditions. Protect the device from vibrations, dust, moisture, heat and strong magnetic fields.

⚠️ **CAUTION**

Make sure that the side ventilation slots on the BEETLE /i8A POS system are not obstructed in order to ensure that the device has sufficient ventilation.
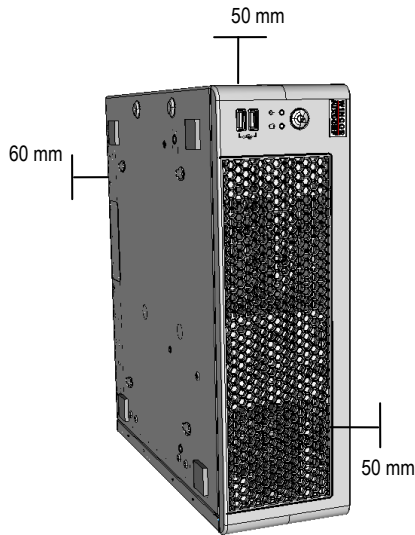
Horizontal installation

Mind the minimum distances indicated below! If the equipment is to be fitted, you also must ensure that the specified minimum distances are maintained and constant ventilation is provided. The immediate ambient temperature of the system must not exceed 40° C (104° F).

Vertical installation of the equipment

BEETLE /i8A can be vertically mounted seating on the right-side.

The minimum top and bottom distances listed in the figure must be maintained; otherwise, a sufficient ventilation of the equipment is not guaranteed.

The BEETLE /i8A is designed for horizontal mounting. If you install the BEETLE /i8A in vertical position, you have to pay attention to the following:

■ Mind the following minimum clearances also for vertical mounting to ensure sufficient ventilation:

	Right-side mounting
Front	50 mm
Back	60 mm
Side (left)	50 mm

■ The unit must be secured to the mounting surface by straps or other mechanical means to prevent it from toppling.
■ A surface made of nonflammable material (e.g. concrete or metal) must be located underneath the vertically mounted BEETLE /i8A unit.

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Cabling of the BEETLE /i8A

Follow the steps below in the order given when installing devices:

■ Plug one end of the power cable into the socket of the BEETLE /i8A.

■ Plug in and secure the data cable.

■ Plug the other end of the power cable into the main power supply.

⚠ WARNING

Always make sure that all power plugs from the grounded-contact power sockets are unplugged.

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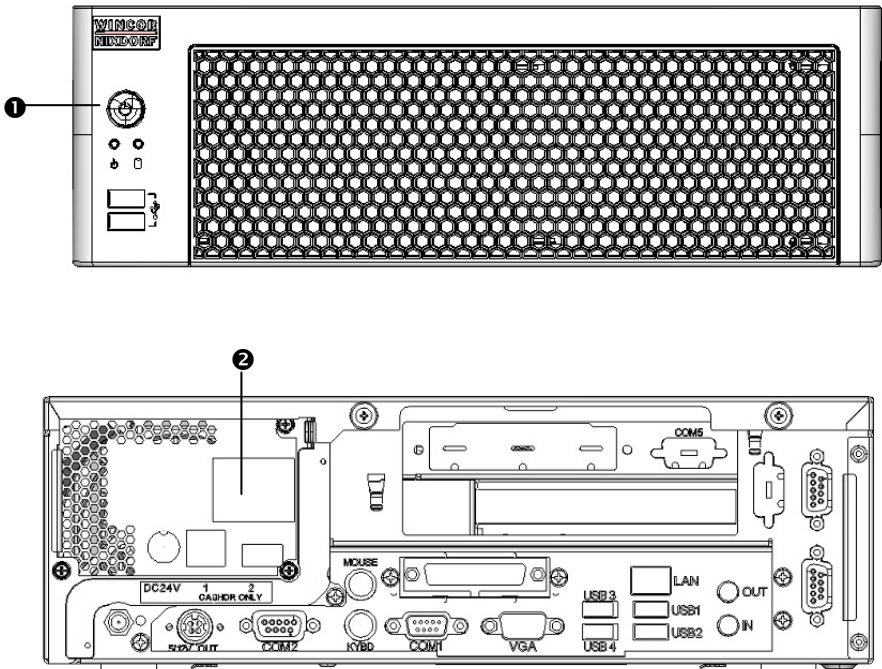
❶	ON Button
❷	Power Input Jack

Push the power ON button on the front side of the system.

Basic settings

Ex works, the BEETLE /i8A is configured to your order. Your configuration must be subsequently adapted to support supplementary devices such as scanners. For more information, contact the Wincor Nixdorf International GmbH branch office responsible for your area.

Replacing the Lithium Battery

 CAUTION

Incorrect replacement of the Lithium Battery may lead to a risk of explosion

The end user must replace the lithium battery only by identical batteries or types recommended by Wincor Nixdorf.

Do not throw Lithium Batteries into the trashcan. It must be disposed of in accordance with local regulations concerning special waste.

Make sure that you insert the Battery the right way round. The plus pole must be on the top!

Follow either one of the following steps to replace the Lithium battery, depending on the type of the motherboard installed.

 WARNING

Always make sure that the system is switched off before you replace the battery.
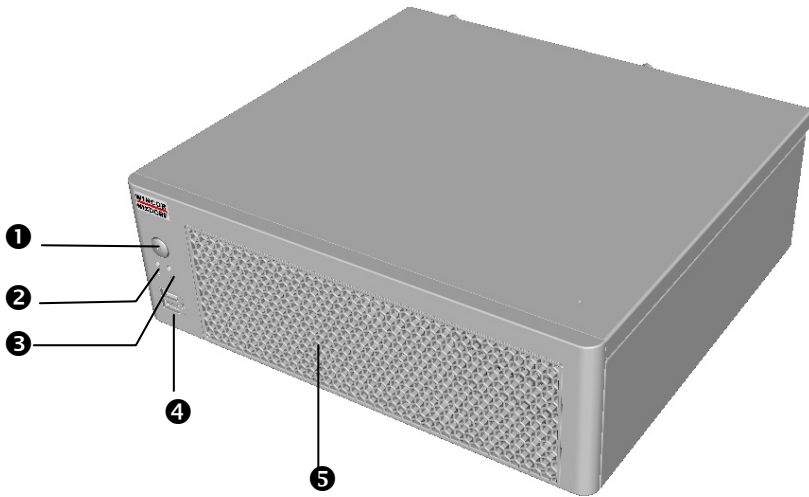
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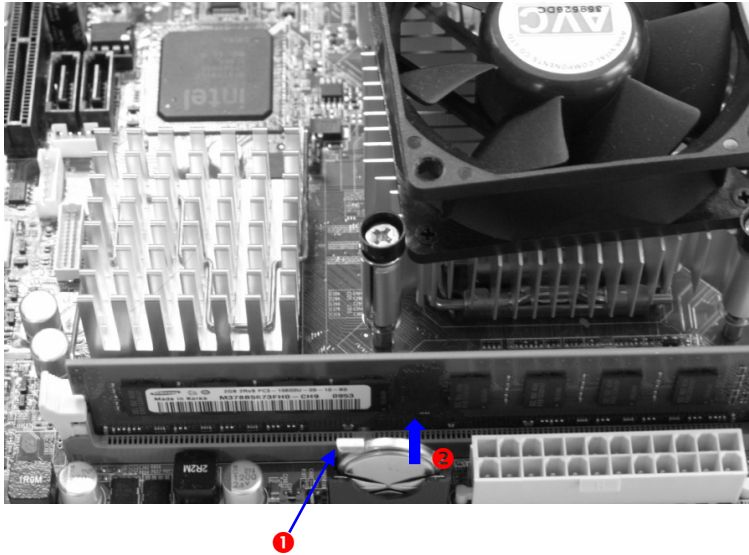
Push the spring latch ❶ *and remove the Lithium Battery from its Socket* ❷

Insert and press a new Lithium Battery of same type in the Socket.

Make sure that you insert the Battery the right way round.

THE SYSTEM BEETLE /i8A

Front side view

❶	ON Button
❷	Power LED
❸	HDD- LED
❹	2 USB Interfaces
❺	Ventilation Slots

ON Button

With a power supplied power unit (power switch switched to 1) you switch on
the system with the power ON button on the front side of the system unit.

Light-emitting Diode (LED)

The LEDs are labeled with HDD for the right LED and with POWER for the
left LED.

HDD	Yellow (blinking)	while the hard disk is being accessed
POWER	Green	the device is switched on
	OFF	the device is switched off

USB (Universal Serial Bus) - A, USB 2.0

You can connect several USB peripheral devices e.g. scanner or scales to the
USB.

Only connect devices equipped with a shielded cable to the USB-interface.

Interior view
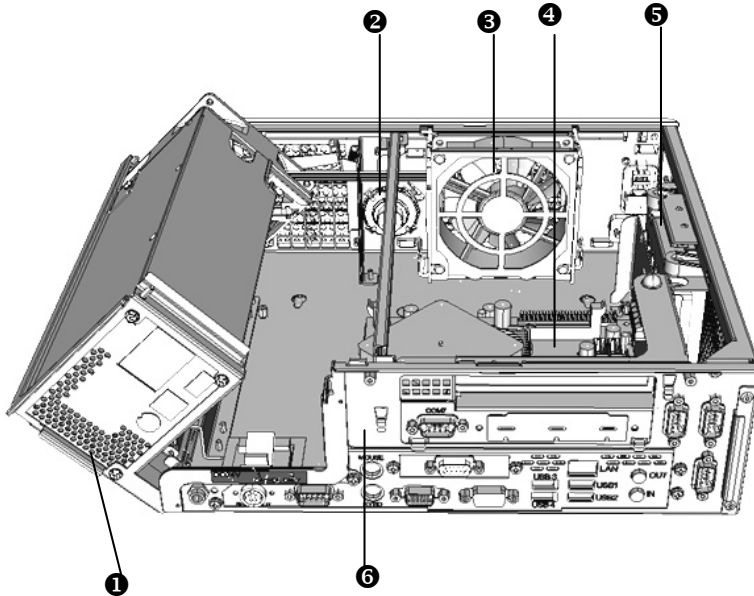
❶	Power Supply
❷	PC Speaker
❸	System Fan
❹	Motherboard
❺	Hard Disk carrier
❻	Carrier for Add-on Cards

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Power Supply

The power supply can be connected to all conventional power supply networks. It automatically adjusts itself to the particular voltage and is fan-cooled. The power output of the power pack is maximum 304 W.

The Power Supply Unit (PSU) carries the 80plus certificate. This means that the PSU will reach an efficiency of at least 80% with each a load of 20%, 50% or 100%. So, less energy is needed and less noise is generated as the fan is much lesser activated due to lower lost heat
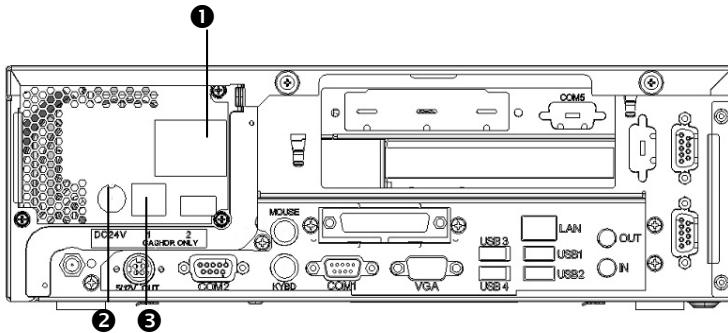
❶	Power input
❷	DC24V (Power supply for the printer, HOSIDEN socket)
❸	RJ12 Cash-drawer

At the front side of the box you will find the ON button which will turn on the system.

The system is automatically switched off, when the operating system is shut down. Pushing (approx. 5 seconds) the ON button at any time will shut down the system. The proper function of the ON button is defined by the settings of the operating system and the BIOS. The power cord receptacle, and the power socket for the printer are located on the back of the BEETLE system.

⚠ WARNING

- The power pack must be removed or replaced by authorized qualified personnel only. Only replace power packs released by Wincor Nixdorf.

- To disconnect the device from the supply voltage completely, switch off the device and disconnect the power plug.

Power Input

Connect the plug of the power cord to this port and the other end to the AC main socket. Pull the main plug to power-off the device completely.

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DC24V (Modular Printer)

POS printers can be powered by this 24VDC output port. Maximum available power is 3 amperes. A connecting cable with a HOSIDEN plug is required for this.

⚠ **WARNING**

- Connect only cables to the 24V connector which are marked with DP-1 or DP-2.

- Do not connect the HOSIDEN plug when the system is turned on, this can lead to an automatically reboot of the system.

- If another external peripheral is connected to the 24V Powered USB port, please make sure that the sum of the currents drawn from the DC24V and the 24V Powered USB ports does not exceed **3A.**
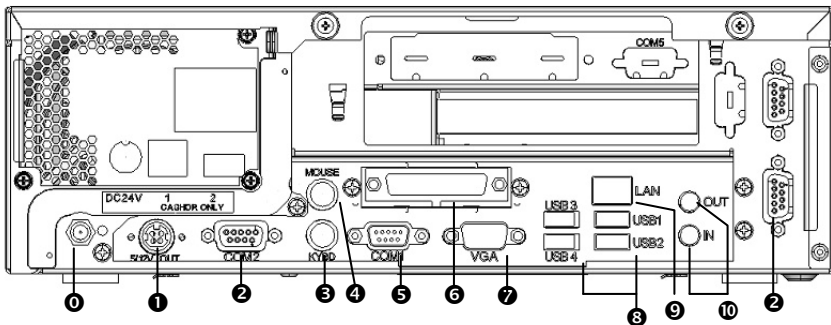
Power consumption

The POS system is usually not disconnected from the mains. The energy consumption is therefore directly depending on the operating state.

All measurements is based on a system configuration of 512MB RAM, 80GB 3.5" 7200rpm SATA-HDD, analog flat screen with 1024x768x16 screen resolution, WOL enabled, Windows XP Professional operating system.

	Entry-level	High-end
Power Off (soft-off)	2W	2W
Standby/ Sleep Mode	29W	36W
Hibernate	3W	3W
Idle Modes	36W	43W
Performance Mode (full load)	39W	68W

System Unit

Always make sure that the system is switched off when you do cabling works. Connecting peripherals with the system switched on is not allowed (exception: USB devices).

❿	12V DC Jack
❶	4-pin 12V LCD Out
❷	D-Sub powered (COM2*,3* & 4*)
❸	PS/2 Keyboard
❹	PS/2 Mouse
❺	D-Sub (COM1)
❻	Expansion port (parallel or second VGA)
❼	VGA
❽	USB (Universal Serial Bus)
❾	LAN (RJ45 socket)
❿	Audio Ports

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Audio (MIC, Line-out)

The two audio ports can be identified by the colour of the jack. Light-green is for Line-out and pink is for the Microphone.

Mini-DIN (Keyboard & Mouse)

The BEETLE /i8A has two 6-pin mini-DIN jack for connecting a PS/2 keyboard and mouse. Make sure that the connector is plugged firmly into the socket to prevent malfunctioning. Power is supplied to the keyboard/mouse via the socket. If you wish to connect an older standard PC keyboard with DIN connector, you must use a special adapter cable, obtainable from the WN branch office responsible for your area.

DSUB plug (COM1)

Connect scales with their own power supply to the COM1 interface. COM1 is designed as a 9-pin D-sub plug.

Make sure that the connector is plugged securely into the socket to prevent possible malfunctioning.

If scales which are not supplied by Wincor Nixdorf International GmbH are connected to the BEETLE /i8A, you must obtain a Wincor Nixdorf license for the driver software.

DSUB Jack powered (COM2*/COM3*/COM4*)

The interfaces connections are a 9-pin D-sub jack for scanner, user or customer displays without own power supply.

NOTE   Make sure that the connector for the customer display is screwed firmly to the socket to prevent possible malfunctioning. Power is supplied via this jack.

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USB (Universal Serial Bus)-A, USB 2.0

You can connect several USB peripheral devices to the USB or powered USB interface (12V or 24V).

✍ **NOTE** Only connect devices equipped with a shielded cable to the USB interface.

RJ45 (LAN)

The system can be connected to a network (LAN) from the POS terminal back panel.

left LED	Green (blinking)	With running network connection (Network cable connection ON, e.g. HUB, Router) "Up link"
right LED	Yellow (blinking)	during network traffic

✍ **NOTE** Only connect shielded LAN cables (CAT5) as these offer a better protection in case of interferences in a network

CRT

Connect your analog monitor to the 15-pin D-sub jack. Power for the monitor can be tapped from either the 12V DC Jack or the 4-pin 12V LCD Out.

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12V DC Jack

This port is intended to supply 12V power to LCD monitor. Rated current is 3A

4-pin 12V LCD Out

This port is intended to supply 12V power to LCD monitor. The pin assignment for the 4-pin connector is as shown below. Rated current is 3A. Use only appropriate power cable supplied by Wincor Nixdorf.
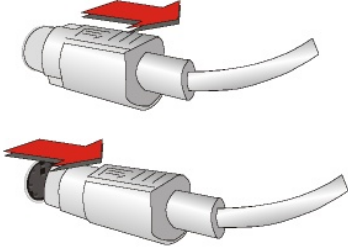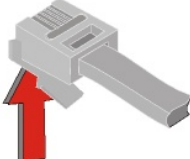

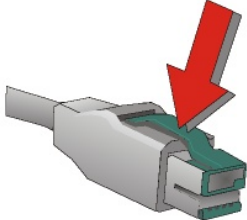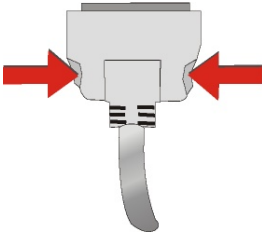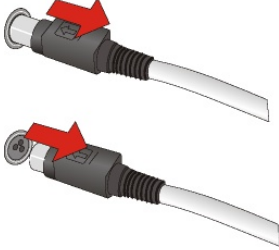Pin 1
12V

Pin 2
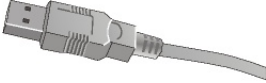GND

Pin 3
NC

Pin 4
NC

! WARNING
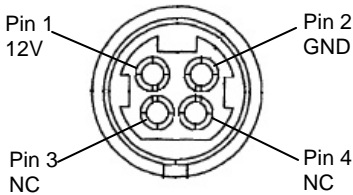
Before connecting the LCD monitor to the 12V DC Jack or the 4-pin 12V LCD Out, make sure that the power requirement of the LCD monitor does not exceed the rated current of the ports.

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Disconnecting cables

Never unplug a cable by pulling on the cable; always take direct hold of the plug itself. Follow the procedure below when disconnecting cables:

- Turn off all power and equipment switches.

- Unplug all data communication cables from the sockets of the data networks.

- Unplug all power plugs from the grounded-contact power sockets.

- Unplug all cables from the devices.

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	With MINI-DIN plugs (Wincor Nixdorf), the plug remains inserted until released. Pull the plastic covering from the connecting socket with your thumb. The lock is released. The metal of the plug is visible.
	RJ12 plugs lock in when you insert them. To release them push the latch under the plug to the top.
	The powered USB connector is disengaged by pressing the spring that is marked by an arrow.

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	To release TFT (LCD) connectors, press the interlocks on the left and right side.
	The Hosiden connector (printer connection) is equipped with a latch against unintentional disconnection of the connection. In order to remove this connector, remove the plastic wrapping of the connection socket. The latch is released. The metal part of the connector is visible and can be pulled out of the bushing.
	Loosen the USB-A- connector by pushing the covering of the connector.

Storage Media

Following storage media are available:

- Two 2.5" SATA- hard disk
- One 2.5" SATA SDD

A solid state disk drive is a data storage drive that uses memory elements in place of a rotating disk to store data. The SSD could easily substitute the hard disk and emulates a hard disk drive interface. The most SSDs are flash memory based.

Change of the Hard Disk Drive

First ensure that the device is switched off and that the power connector is disconnected.

Open your BEETLE /i8A. Loosen the two screws at the back side (1) and pull it out of the front guide (2). Lift the top cover at the back side (3)
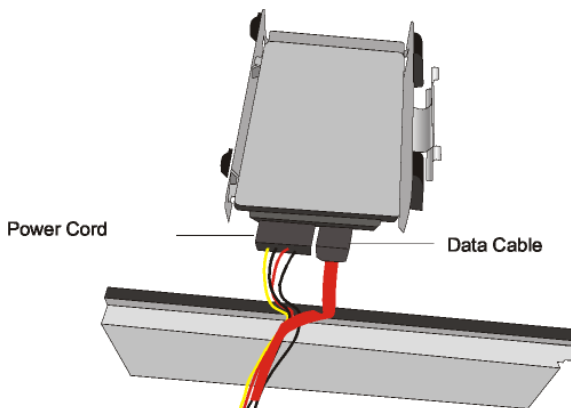
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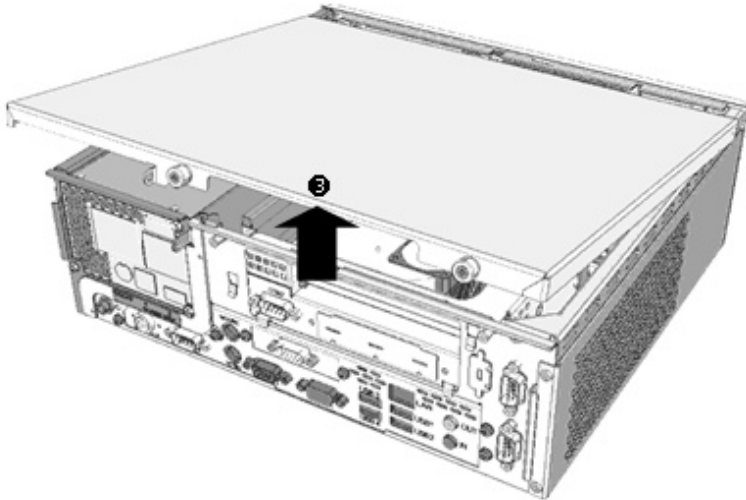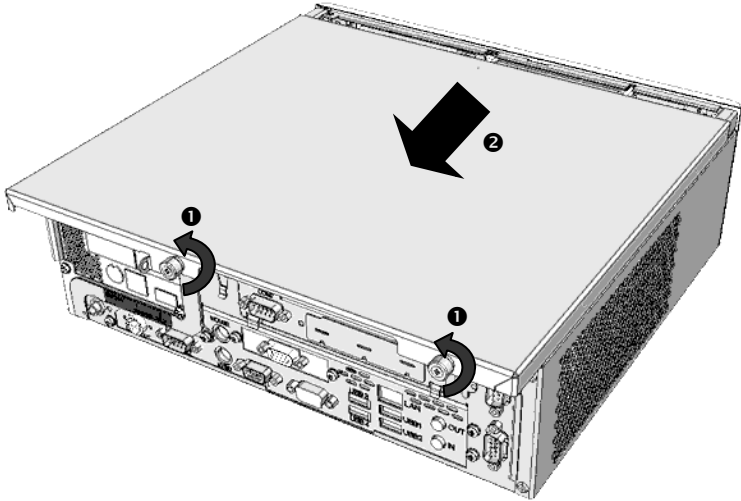
Procedure for changing 2.5" storage media

Push the metal plate (1). Tilt the hard disk holder into the direction of arrow (2).
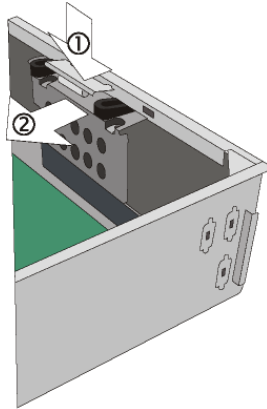
Lift up the drive and remove it. Loosen the connecting cables.

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Loosen the four Phillips head screws (see arrows) at the holder with a screwdriver
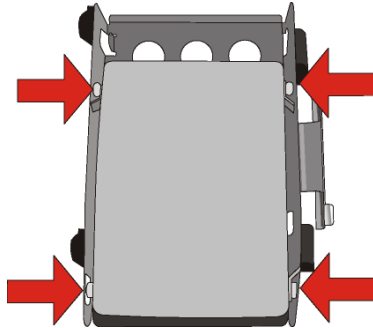
Ensure that you handle the hard disk with extreme caution during the installation. Never touch bare electronics.

Change the hard disk. Please pay regard to the correct fitting position. A 2.5" hard disk is being installed at the upper position on the drive holder

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Connect both cables to the hard disk.
Insert the drive holder.
Make sure that the buffers are corresponding to the stampings in the base
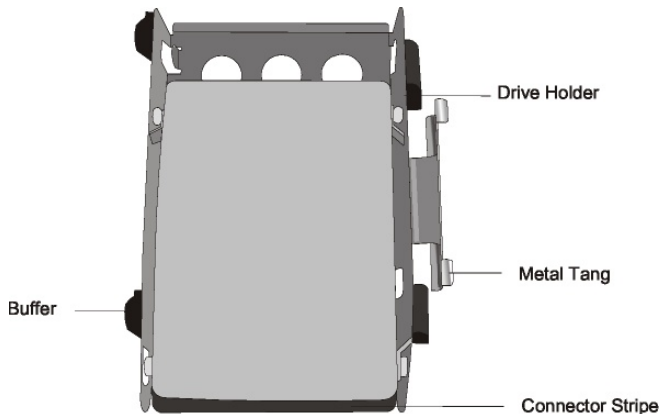plate (see arrows).
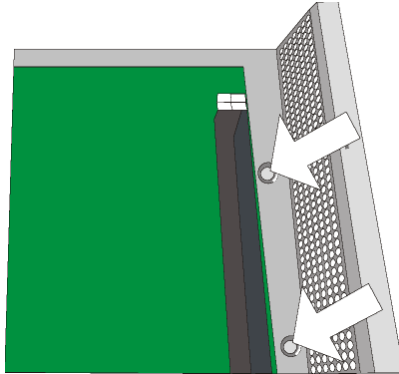
Carefully tilt the hard disk carrier into its original position. Make sure that the
drive holder will not pinch the cables. The metal tangs snap in place.

Close the cover and connect the main plugs. Now you can switch on the
system.

Optional Add-on

The I/O layout in the area for the Optional Add-on boards is one of the two kinds shown below depending on the category your POS terminal belongs to. The currently supported Add-On boards are powered USB Hub and powered COM Hub.

Category A (High-end)
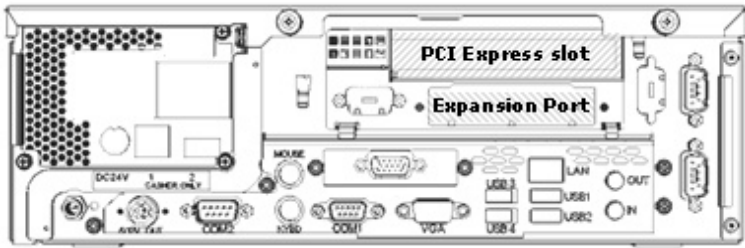
Category B (Entry-level)
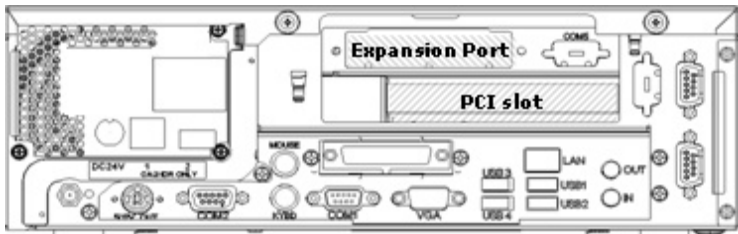
Powered USB Hub

There are two 12V and one 24V USB interfaces on an optional available board.
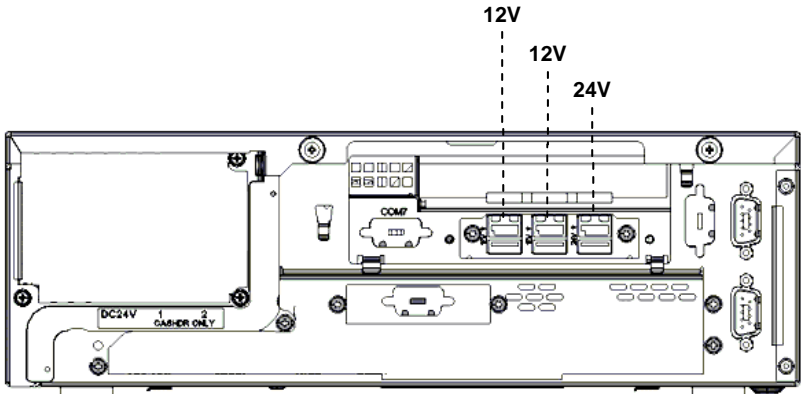
You can connect or disconnect USB devices during operation of your BEETLE, provided that these devices comply with the specifications according to usb.org.

Other peripheral devices with higher power requirement (such as Powered USB printer) should be connected to or disconnected from your BEETLE system only after the BEETLE has been switched off.

⚠ **WARNING**

- If another external peripheral is connected to the DC24V port, please make sure that the sum of the currents drawn from the DC24V and the 24V Powered USB ports does not exceed **3A.**

Powered COM Hub - COM5*,6*,7*

The standard system can be configured with three additional COM* interfaces via USB-to-Serial hub.

Scanners, customer and operator displays without own power supply are connected to these serial interfaces.

The interface connection is a 9-pin D-sub jack.

Make sure that the connector for the customer display is screwed firmly to the socket to prevent possible malfunctioning. Power is supplied via this jack.

The interfaces COM7 are also available without own power supply.
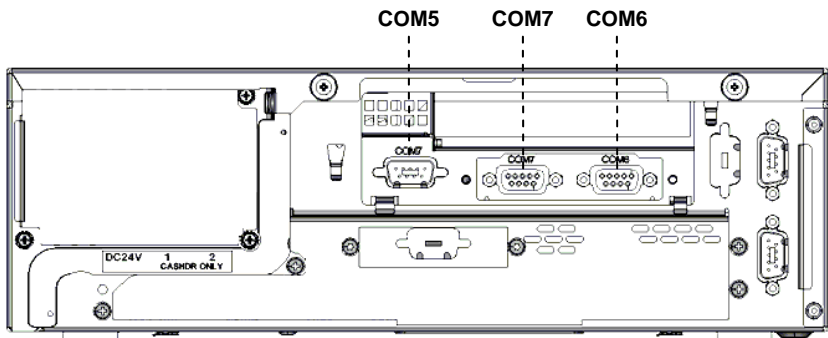
Starting up the system

The configuration label shows you the equipment included in your modular
BEETLE /i8A system. The label is located at the underside of the BEETLE
/i8A.

Start and runup behaviour

After installing the BEETLE /i8A, switch on the POS system using the ON/OFF
button on the front panel and the power switch on the power supply.

The system first performs an automatic self-test to test its basic functions.

For example, you may see the following on the monitor:

```
Phoenix – AwardBIOS v6.00PG, An Energy Star Ally
Copyright © 1984-2009, Phoenix Technology. LTD

WN-H08 Vx.xx BIOS-N-8M (2Kyyyyyy)




Press DEL to enter SETUP
```

- x.xx is the placeholder of the BIOS version number.

- yyyyyy is the place holder for the BIOS datecode.

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The system then determines the medium from which the operating system and POS application are to be booted. Each medium is assigned a logical drive according to the configuration of your BEETLE /i8A.

The following media can be assigned a drive:

- Network
- Hard disk
- CD-ROM

The logical drives are designated C: and D:

The network is always assigned to the C: drive during the runup procedure. The hard disk can be assigned to the C: or D: drive. The system can only be started from the hard disk if the disk has been configured as the C: drive.

The boot priority can be set to the user preference via the BIOS SETUP menu.

If the operating system has started up without error, the POS application software is automatically booted if necessary.

Appendix

Technical Data for the BEETLE /i8A

Dimensions
Width   310 mm
Depth   280 mm
Height   103 mm

Weight   approx. 6.5 kg

Climatic category   DIN IEC 721-3-3
Class 3K3   DIN IEC 721-3-2
Class 2K2   DIN IEC 721-3-1
Class 1K2

Temperature:
Operating (3K3)   +5°C up to +40°C
Transport   (2K2)   -25°C up to +60°C
Storage   (1K2)   +5°C up to +40°C

Input voltage   100- 120 V
                               200- 240 V

Max. power consumption   4A / 7A

Frequency of the   50/60 Hz
system voltage

Noise development   70 dB(A) or less

Mains power outlet   100 - 120 V /2 A max
                               200 - 240 V /1 A max

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Interfaces

COM	COM1 (w/o power supply), COM2* (with power supply) Optional: COM5*- COM7* (with power supply) via Powered COM Hub
USB	4x rear USB + 2x front USB Optional: 2x Powered USB 12V and 1x Powered USB 24V via Powered USB Hub
CRT	Analog VGA port
LPT	onboard
MIC	Port for microphone
Line-out	Port for audio output
PS/2	2 (keyboard and mouse)
DC24V	POS- printer with low voltage on the integrated power supply
12V DC Jack	12V output port (rated 3A)
4-pin 12V LCD out	12V output port (rated 3A)
LAN	RJ45- jack, 10/100 Mbit/s
PCI-Bus	1 x PCI 2.1, 32 Bit, 33MHz
SATA II	for internal hard disk

Rear I/O Configurations

Basic
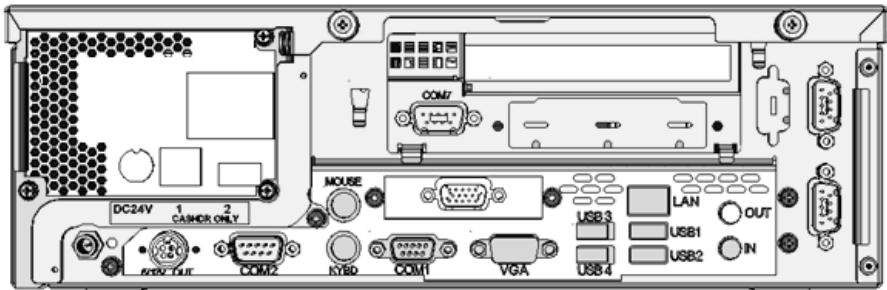
with Powered USB Hub
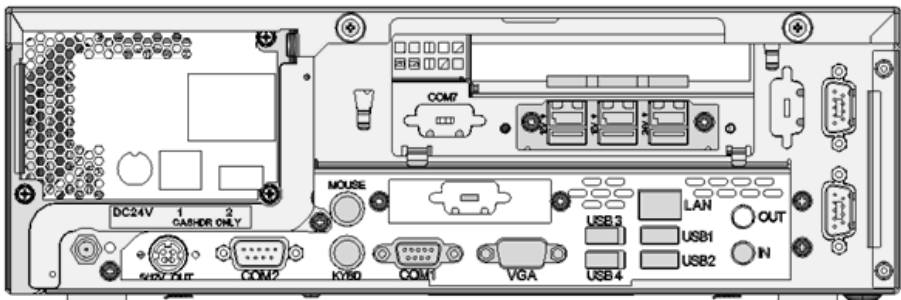
with Powered COM Hub

Total Current Consumption of Interfaces

The total current consumption at **5V interfaces** must not exceed **5A.**
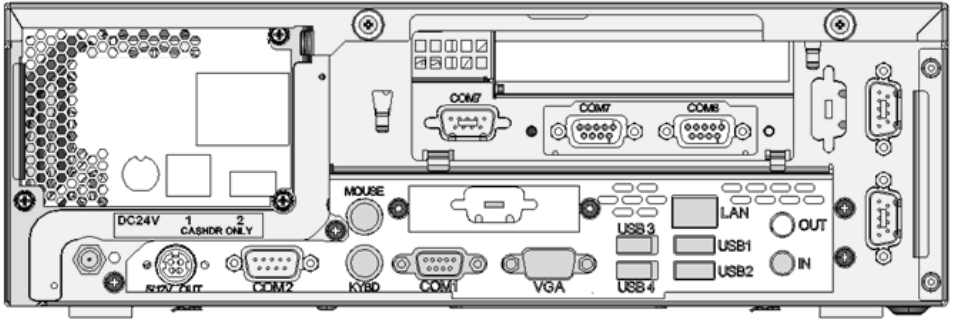
each COM*	= 300mA, in total 1A
each USB	= 500mA, in total 3A
each USB (HUB)	= 500mA, in total 1A

Max. 5A @ 5V

The total current consumption at **12V interfaces** must not exceed **5A.**

each COM*	= 600mA, in total 900mA
each USB	= 1.5A, in total 2A
each USB (HUB)	= 1.5A, in total 2A

Max. 5A @ 12V

The total current consumption at **24V** interfaces (DC24V and 24V Powered USB) must not exceed **3A.**

each USB (HUB)	= 3.0A, in total 3.0A
DC24 (power supply)	

Max. 3A @ 24V

Power consumption of add-on PCI Controllers is limited to 10W for each slot.

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Motherboard Connectors
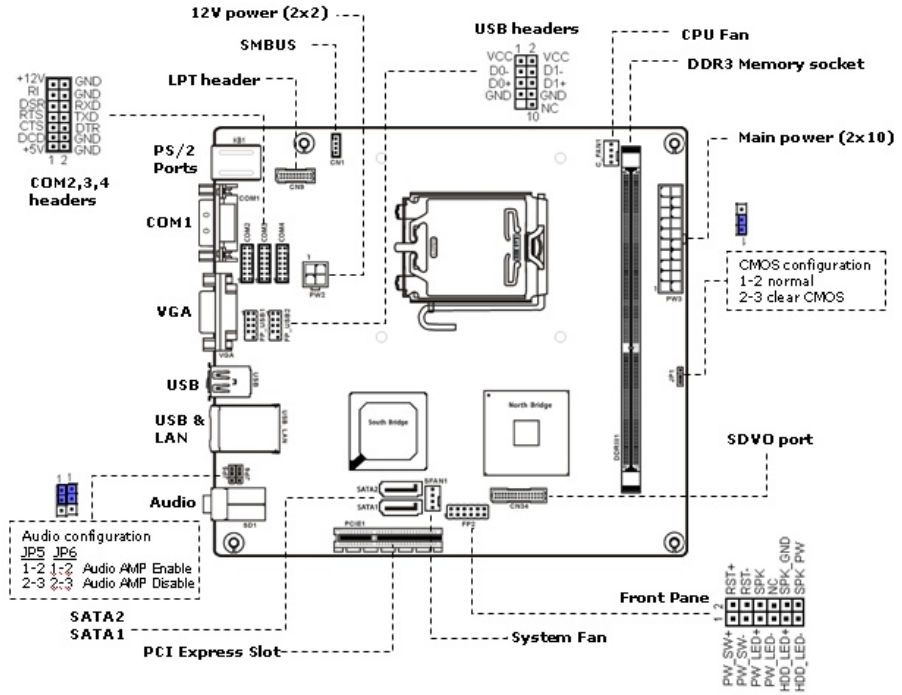
Glossary

Bit
A bit is a binary digit (0 or 1). It is the smallest unit used in data processing.

Controller
Serves to control data input and output in a data processing system or between a computer and the connected peripherals.

CPU
Abbreviation for central processing unit. It includes the main components of a data processing system. The CPU monitors all operations and provides data and programs. It comprises the control unit for input and output, the computer and the main memory, divided into ROM and immediate access storage.

DVI
It is a new standard for digital data transfer. A DVI connection transfers a digital signal to the monitor without converting it to analog, thereby making sure that no information is lost or garbled in the digital-to-analog conversion and following analog-to-digital conversion that can occur in current digital display devices. DVI has three subsets: DVI-A, for analog signals, DVI-D, for digital signals, and DVI-I *(integrated),* for both analog and digital signals. In the future PCs and laptops are not only equipped with DVI, but also video devices as DVD.

Interface
Designates the transition point between different hardware units and software units or between hardware and software units of computers or their peripherals.

JEIDA
Abbreviation of Japan Electronic Industry Development Association.
Industry standard for memory cards.

Operating system
Refers to all programs that are a component of a computer and are required for operating the system and executing application programs.

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PCIe
Abbreviation of Peripheral Component Interconnect Express. The basis for
the „classical" bus structure is a parallel architecture, i.e. all connected
terminals share an available bandwidth. With the new technology – PCI
Express - the transfer rates are increased by switched point-to-point
connections. A switch connects two PCIe components at a time with full
bandwidth and speed.

PCMCIA
Abbreviation for Personal Computer Memory Card International Association.
Industry standard for memory cards.

Plug and PLay (PnP)
PnP means the automatic recognition of hardware components by the
system. Thus the installation, integration and configuration of new
components is made substantially easier.

Peripherals
Devices serving as an input/output device or storage for a computer. This
includes, for example, document readers, keyboards, printers and disk
storage.

SATA
Abbreviation for "Serial Advanced Technology Attachments", a serial
interface. By using the serial transmission SATA will do with a thin four-wired
conductor and a small plug. ATA so far was known for the broad ribbon cable.

Server
This is a computer connected to a local network and whose services are
available to all of the network subscribers, e.g. a print server for printing the
data from all of the network subscribers on the printer connected to the server.

VGA
Stands for Video Graphics Array and is the interface for connecting colour
monitors.

Abbreviations

CE	European Symbol of Conformity
COM	RS 232 Schnittstelle
CPU	Central Processor Unit (for example INTEL Celeron-M)
CRT	Cathode Ray Tube
cUL	Canadian Registration (Recognized by UL)
DIMM	Dual Inline Memory Module
DIN	Deutsches Institut für Normen (German Institute for Standards)
D-Sub	D- Shaped Subminiature
DVD-ROM	Digital Versatile Disc Random Access Memory
DVD-RW	Digital Versatile Disc Rewritable
EMV	Electromagnetic Compatibility
FCKW/CKW	Fluorchlorkohlenwasserstoffe/Chlorkohlenwasserstoffe
HDD	Hard Disk Drive
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
NV RAM	non violate RAM
OS	Operating System
PCI	Peripheral Component Interconnect
PCIe	Peripheral Component Interconnect express
PEN-Leiter	Protective Earth Neutral- Leiter
PLINK	Panel-Link
PnP	Plug and Play, Plug & Play
POS	Point Of Sales
PS	Power Supply
RAID	Redundant Array of Independent Disks
RAM	Random Access Memory
SATA	Serial Advanced Technology Attachment
SSD	Solid State Disk (flash medium)
TCO	Total Cost of Ownership
TDP	Thermal Design Power (INTEL specification)
TFT	Thin Film Transistor
TN-S	Terre Neutre- Separé
UL	Underwriters Laboratory (standards)
UPS	Uninterruptable Power Supply
USB	Universal Serial Bus

VDE	German Association for Electrical, Electronic and Information Technologies
WAN	Wide Area Network
WLAN	Wireless Local Area Network
WN	Wincor Nixdorf International GmbH
ZC	Zero Cache

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