System Specifications

Features

Below is a brief summary of the computer's many feature:

Platform and memroy

❑ AMD Turion^TM 64 ML-28/ML-32 processor at 1.6/1.8 GHz or higher with 128 KB L1 cache and 512 KB L2 cache, or

❑ AMD Turion^TM 64 ML-30/ML-34/ML-37/ML-4 processor at 1.6/1.8/2.0/2.2 GHz or higher with 128 KB L1 cache and 1 MB L2 cache, or

❑ Mobile AMD Sempron^TM processor 2600+/3000+ or higher with 128 KB L2 cache, or

❑ Mobile AMD Sempron^TM processor 2600+/3000+ or higher with 256 KB L2 cache, or

❑ ATI RS480M and SB400 chipset

❑ 256/512 MB of DDR333 memory, upgradeable to 2 GB using two soDIMM modules

Display

❑ Thim-Film Transistor (TFT) displaying at :

♦ 15.0" XGA (1024 x 768)

♦ 15.0" SXGA+ (1400 x 1050)

♦ 15.4" WXGA (1280 x 800)

♦ 15.4" WXGA+ (1680 x 1050)

❑ ATI MOBILITY^TM RADEON^TM X600 or ATI MOBILITY^TM RADEON^TM X700

❑ Simultaneous display on LCD and CRT display

❑ DualView^TM support

❑ MPEG-2/DVD hardware-assisted capability

Storage subsystem

❑ One 40 GB or harger hard disk drive

❑ Optical drive options:

♦ DVD-Super Multi

♦ DVD-Dual

♦ DVD/CD-RW combo

❑ 6-in-1 card reader (MS/MS PRO/MMC/SD/SM/xD-Picture Card

❑ Simultaneous display on LCD and CRT display

❑ DualView^TM support

❑ MPEG-2/DVD hardware-assisted capability

Input devices

❑ Acer FineTouchTM keyboard with a 5-degree curve

❑ 88/89-key keyboard

❑ Touchpad with 4-way integrated scroll button

❑   Six easy-launch buttons

Audio

❑   Audio system with two built-in speakers

❑   MS-Sound compatible

Communication

❑   Modem: 56K ITU V.90/V.92 modem with PTT approval; wake-on ring ready

❑   LAN: 10/100/1000 Mbps Fast Ethernet (for selected models); wake-on ring ready

❑   WLAN (manufacturing option): integrated 802.11b/g dual band (for selected models), or 802.11a/b/
g tri-mode WI-Fi CERTIFIEDTM WLAN solution (for selected models); Acer SignalUp wireless
technology support
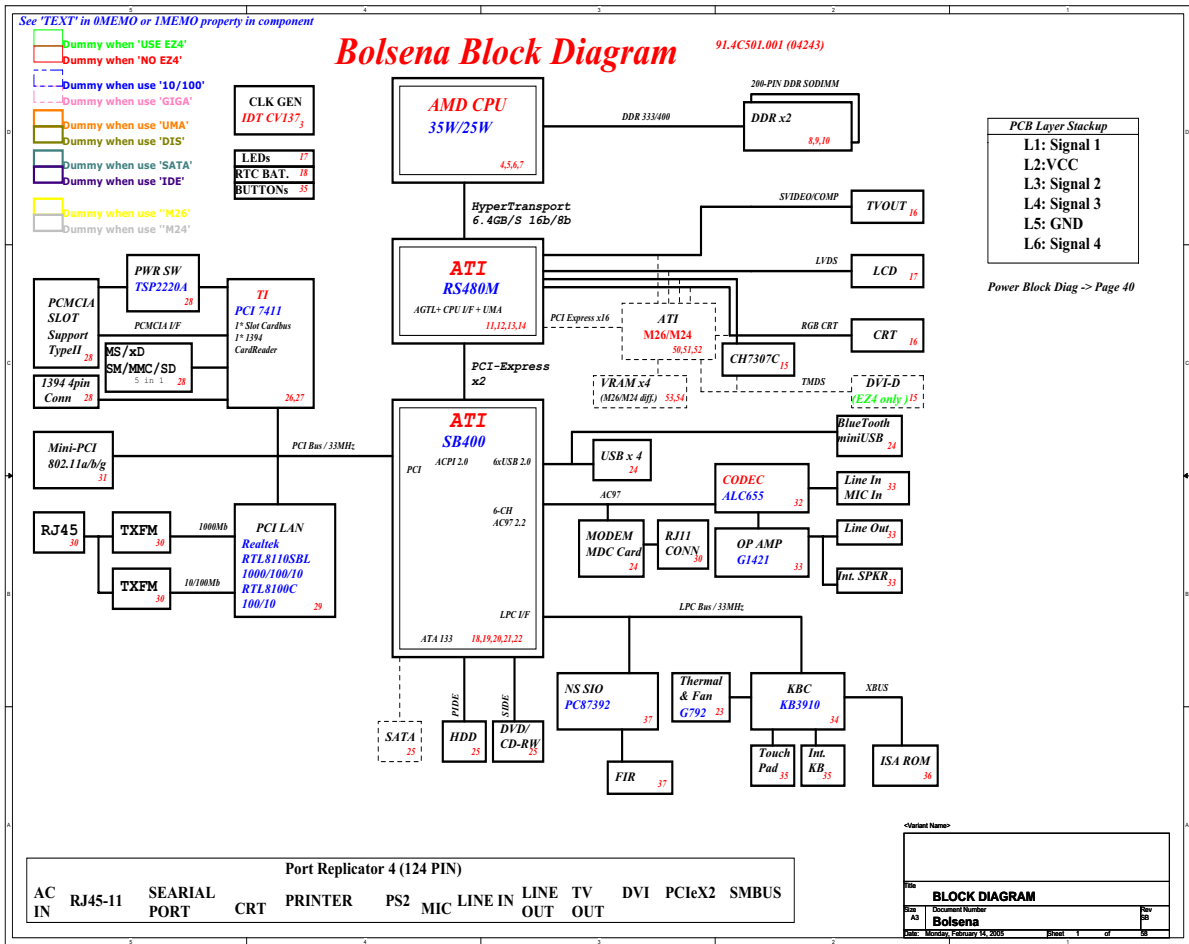
❑   WPAN (manufacturing option): integrated Bluetooth$^{®}$

Human-centric design and ergonomics

❑   Rugged, yet extremely portable design

❑   Stylish appearance

❑   Full-size keyboard with four programmable launch keys

❑   Ergonomically-centered touchpad pointing device

❑   Acer FineTouch keyboard with a 5-degree curve
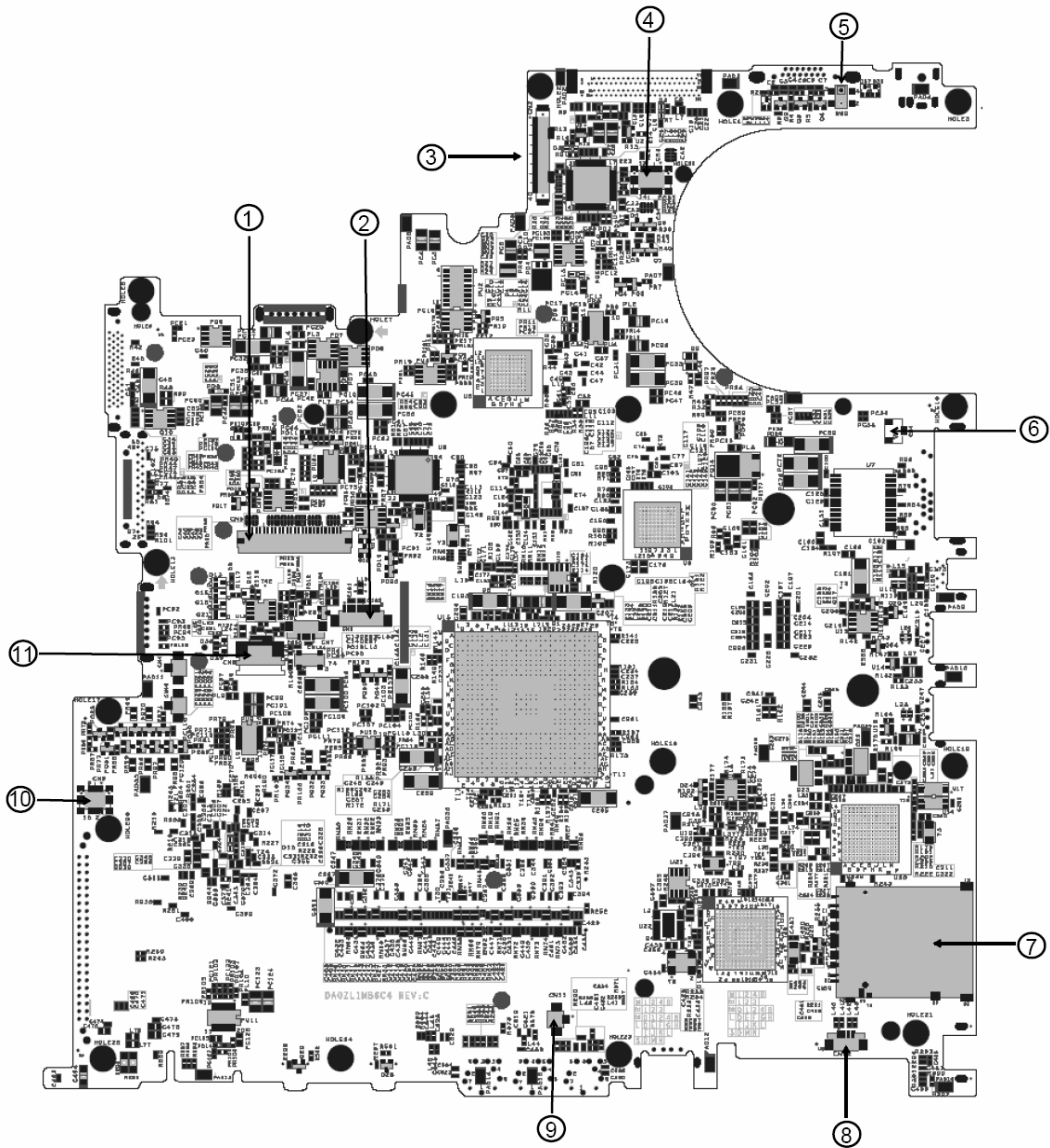
❑   Internet 4-way scroll button

I/O Ports

❑   Four USB 2.0 ports

❑   IEEE 1394 port

❑   Ethernet (RJ-45) port

❑   Modem (RJ-11) port

❑   Extternal display (VGA) port

❑   S-video/TV-out port

❑   Microphone/line-in jack

❑   Headphones/speaker/line-out port

❑   Infrared (FIR) port

❑   Type II PC Card slot

❑   6-in-1 card reader

❑   DC-in jack for AC adaptor

❑   124-pin Acer ezDock connector (for selected models)

System Block Diagram

See 'TEXT' in 0MEMO or 1MEMO property in component

Dummy when 'USE EZ4'
Dummy when 'NO EZ4'

Dummy when use '10/100'
Dummy when use 'GIGA'

Dummy when use 'UMA'
Dummy when use 'DIS'

Dummy when use 'SATA'
Dummy when use 'IDE'

Dummy when use 'M26'
Dummy when use ''M24'

Bolsena Block Diagram

91.4C501.001 (04243)

CLK GEN
IDT CV137 3

200-PIN DDR SODIMM

AMD CPU
35W/25W
4,5,6,7

DDR 333/400

DDR x2
8,9,10

PCB Layer Stackup
L1: Signal 1
L2:VCC
L3: Signal 2
L4: Signal 3
L5: GND
L6: Signal 4

Power Block Diag -> Page 40

LEDs 17
RTC BAT. 18
BUTTONs 35

HyperTransport
6.4GB/S 16b/8b

SVIDEO/COMP
TVOUT 16

LVDS
LCD 17

PWR SW
TSP2220A 28

ATI
RS480M
AGTL+ CPU I/F + UMA
11,12,13,14

PCI Express x16

ATI
M26/M24
50,51,52

RGB CRT
CRT 16

PCMCIA SLOT Support TypeII 28

TI
PCI 7411
1º Slot Cardbus
1º 1394
CardReader
26,27

PCMCIA I/F

MS/xD
SM/MMC/SD
5 in 1 28

PCI-Express
x2

CH7307C 15

TMDS
DVI-D
(EZ4 only) 15

1394 4pin
Conn 28

VRAM x4
(M26/M24 diff.) 53,54

Mini-PCI
802.11a/b/g 31

PCI Bus / 33MHz

ATI
SB400
PCI   ACPI 2.0   6xUSB 2.0

USB x 4 24

BlueTooth miniUSB 24

AC97
CODEC
ALC655 32

Line In MIC In 33

RJ45 30

TXFM 30

1000Mb

PCI LAN
Realtek
RTL8110SBL
1000/100/10
RTL8100C
100/10 29

6-CH
AC97 2.2

MODEM MDC Card 24

RJ11 CONN 30

OP AMP
G1421 33

Line Out 33

TXFM 30

10/100Mb

Int. SPKR 33

LPC Bus / 33MHz

LPC I/F

ATA 133   18,19,20,21,22

NS SIO
PC87392 37

Thermal & Fan
G792 23

KBC
KB3910 34

XBUS

SATA 25

PIDE

HDD 25

SIDE

DVD/ CD-RW

FIR 37

Touch Pad 35

Int. KB 35

ISA ROM 36

<Variant Name>

Port Replicator 4 (124 PIN)

AC IN   RJ45-11   SEARIAL PORT   CRT   PRINTER   PS2   MIC   LINE IN   LINE OUT   TV OUT   DVI   PCIeX2   SMBUS

Title
BLOCK DIAGRAM
Size   Document Number   Rev
A3   **Bolsena**   SB
Date: Monday, February 14, 2005   Sheet   1   of   98

Board Layout

Top View

| 1	Keyboard Connector	7	3 in 1 Connector
2	Bluetooth Board Connector	8	Speaker Connector
3	LCD Cable Connector	9	Internal Microphone Connector
4	LED Board Connector	10	Modem Board Connector
5	Lid Switch	11	Touchpad Board Connector
6	Modem Cable Connector		

Bottom View
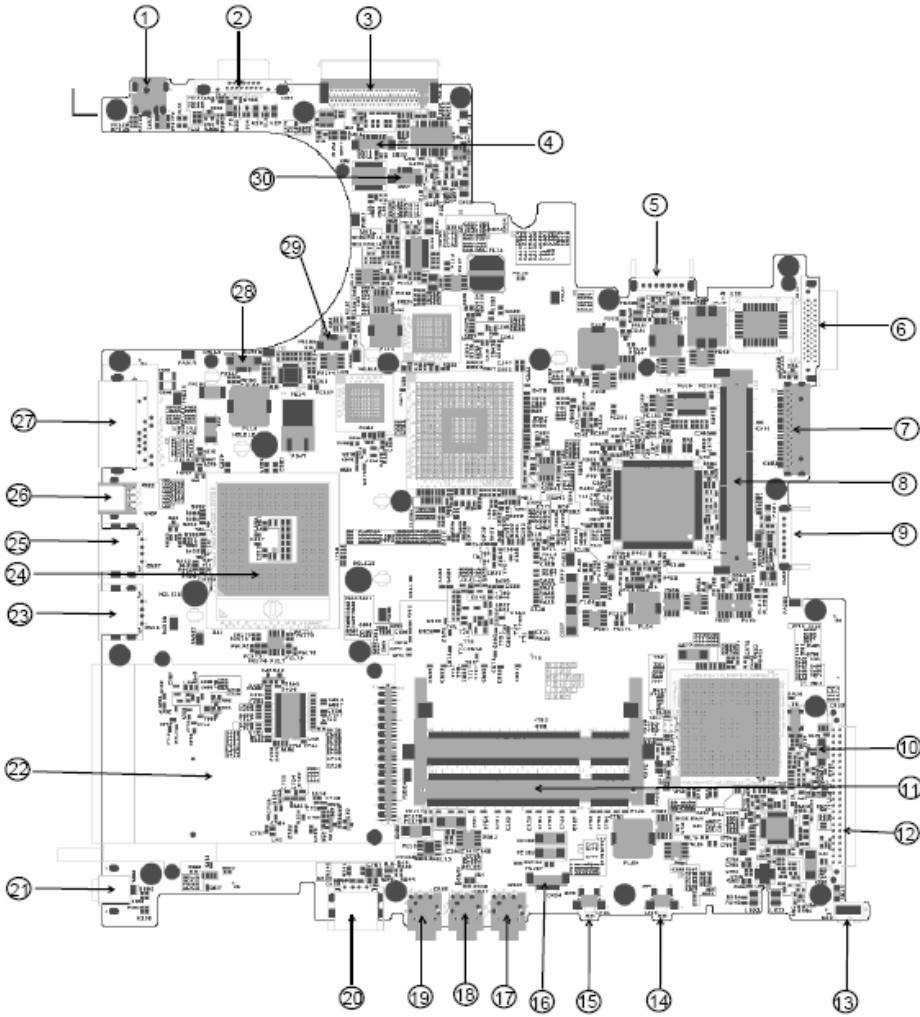
1	Power Jack	16	Audio Cable Connector
2	CRT	17	Line-in Connector
3	Docking	18	Headphone Out Connector
4	Audio Cable Connector	19	Microphone-in Connector
5	Main Battery Connector	20	USB Connector
6	ODD Connector	21	IEEE 1394 Connector
7	Media Bay Connector	22	PCMCIA
8	Mini PCI Slot	23	USB Connector
9	Second Battery Connector	24	CPU Socket
10	RTC Battery Connector	25	USB Connector
11	DDR DIMM Connector	26	S-Video
12	HDD Connector	27	RJ45 and RJ11 Connector

13	IR	28	LAN Cable Connector
14	Bluetooth Switch	29	FAN Connector
15	Wireless Switch	30	LAN Cable Connector

A TravelMate tour

After knowing your computer features, let us show you around your new TravelMate computer.

Front View
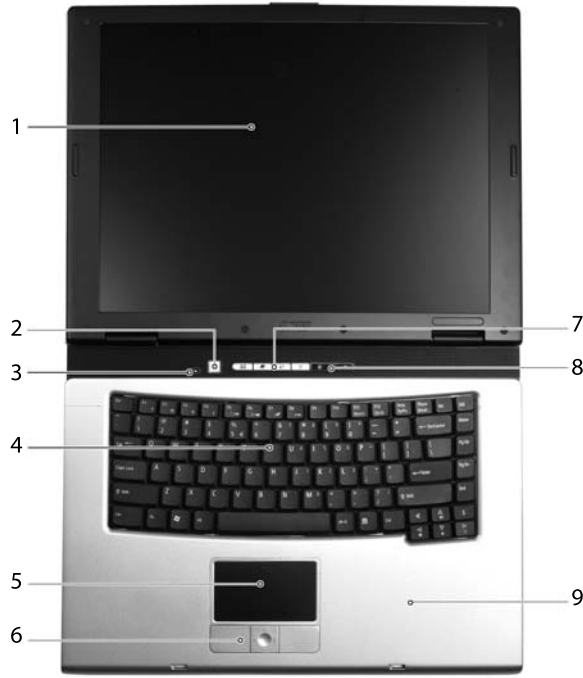
#	Icon	Item	Description
1		Display screen	Also called LCD (liquid-crystal display), displays computer output.
2		Power button	Turns the computer on and off.
3		Microphone	Internal microphone for sound recording.
4		Keyboard	For entering data into your computer.
5		Touchpad	Touch-sensitive pointing device which functions like a computer mouse.
6		Click buttons (left, center and right)	The left and right buttons function like the left and right mouse buttons; the center button serves as a 4-way scroll button.
7		Launch keys	Buttons for launching frequently used programs.
8		Status indicators	Light-Emitting Diodes (LEDs) that turn on and off to show the status of the computer's function and components.
9		Palmrest	Comfortable support area for our hands when you use the computer.

Closed Front View
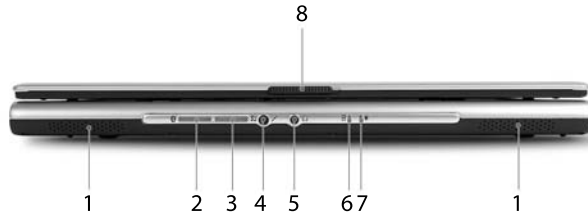
#	Icon	Item	Description
1		Speakers	Left and right speakers deliver stereo audio output.
2		Bluetooth® communication button/indicator	Press to enable/disable Bluetooth function. Lights to indicate the status of Bluetooth-communications (manufacturing option).
3		Wireless communication button/indicator	Press to enable/disable Wireless function. Lights to indicate the status of wireless LAN communications. (manufacturing option).
4		Line-in/mic-in jack	Accepts input from external microphones.
5		Speaker/Line-Out/Headphone jack	Connects to audio line-out devices (e.g., speakers, headphones).
6		Battery indicator	Lights when the battery is being charged
7		Power indicator	Lights when the computer is on.
8		Latch	Locks and releases the lid.

Left View
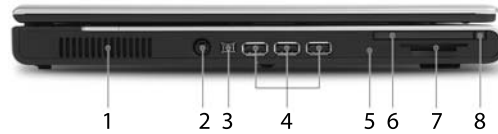
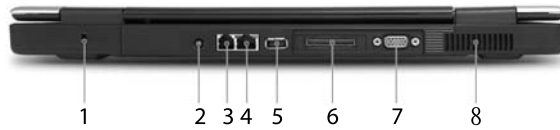| #	Icon	Item	Description
1		Ventilation slots	Enable the computer to stay cool, even after prolonged use.
2	S→	S-video/TV-out port	Connects to a television or display device with S-video input (manufacturing option).
3	1394	IEEE 1394 port	Connects to IEEE 1394 devices (manufacturing option).
4	●⟲	3 USB 2.0 ports	Connects to USB 2.0 devices (e.g., USB mouse, USB camera).
5	▬ ·· ◤	Infrared port	Interfaces with infrared devices like infrared printer and IR-aware computer (manufacturing option).
6		PC Card slot	Connects to one Type II PC Card.
7	M SD PRO xD SmartMedia	6-in-1 card reader	Accepts and MS, MS PRO, MMC, SD, SM or xD-Picture card (manufacturing option). Note: Only one card can operate at any given time.
8		PC Card slot eject button	Ejects the PC Card from the slot.

Right View

#	Icon	Item	Description
1		Optical drive	Internal optical drive; accepts CDs or DVDs depending on the optical drive type.
2		Optical drive eject button	Ejects the optical drive tray from the drive.

Rear Panel

#	Icon	Item	Description
1	🔒 K	Security Keylock	Connects toa Kensington-compatible computer security lock.
2		Power jack	Connects to an AC adaptor.
3		Modem jack (RJ-11)	Connects to a phone line.
4		Network jack	Connects to an Ethernet 10/100/1000-based network.
5		USB 2.0 port	Connects to USB 2.0 devices (e.g., USB mouse, USB camera).
6		124-pin Acer ezDock connector (for selected models)	Connects to Acer ezDock.
7		External display port	Connects a display device (e.g., external monitor, LCD projector).

Bottom Panel
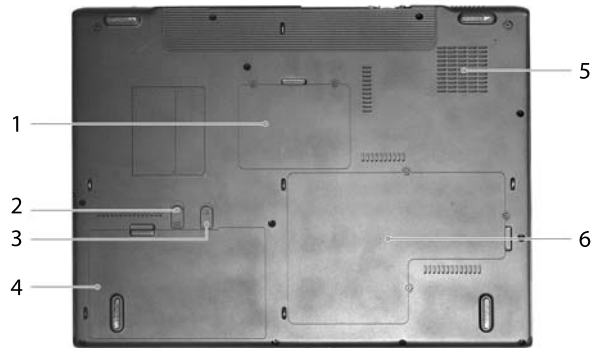
#	Item	Description
1	Wireless LAN bay	Houses the computer's wireless LAN.
2	Battery lock	Locks the battery in place.
3	Battery release latch	Releases the battery for removal.
4	Battery bay	Houses the computer's battery pack.
5	Cooling fan	Helps keep the computer cool. Note: Do not cover or obstruct the opening of the fan.
6	Memory and hard disk bay	Houses the computer's main memory and hard disk (secured by a screw).

Indicators

The computer has four easy-to-read status indicators on the upper-right above the keyboard, and four on the front panel.

The power, battery and wireless communication status indicators are visible even when the LCD display is closed.

Icon	Function	Description
🔒A	Cap lock	Lights when Cap Lock is activated
🔒1	Num lock	Lights when Num Lock is activated.
🛢	Media Activity	Indicates when the hard disc or optical drive is active.
ᛒ	Bluetooth	Indicates the status of Bluetooth communication.
◌	Wireless LAN	Indicates the status of wireless LAN communication.
☼	Power	Lights up when the computer is on.
🔋	Battery	Lights up when the battery is being charged.

NOTE: 1. **Charging:** The light shows amber when the battery is charging. 2. **Fully charged:** The light shows green when in AC mode.

Launch Keys

Located at the upper-right, above the keyboard are four buttons. These buttons are called launch keys. The

are: mail, Web browser, Acer Empowering key " e " and one user-programmable button.

Press " e " to ru the Acer eManager. Please see "Acer eManager". The mail and Web buttons are pre-set to email and Internet programs, but can be reset by users. To set the Web browser, mail and programmable keys, run the Acer Launch Manager.

Launch key	Default application
Mail	Email application (user-programmable)
Web browser	Internet browser (user-programmable)
e	Acer eManager (user-programmable)
P	User-programmable

Touchpad

The built-in touchpad is a pointing device that senses movement on its surface. This means the cursor responds as you move your finger across the surface of the touchpad. The central location on the palmrest provides optimum comfort and support.

Touchpad Basics

The following teaches you how to use the touchpad:

❑   Move your finger across the touchpad (2) to move the cursor.

❑   Press the left (1) and right (4) buttons located beneath the touchpad to perform selection and execution functions. These two buttons are similar to the left and right buttons on a mouse. Tapping on the touchpad is the same as clicking the left button.

❑   Use the 4-way scroll (3) button to scroll up or down and move left or right a page. This button mimics your cursor pressing on the right scroll bar of Windows applications.

Function	Left Button (1)	Right Button (4)	Main touchpad (2)	Center button (3)
Execute	Click twice quickly		Tap twice (at the same speed as double-clicking the mouse button)	
Select	Click once		Tap once	

Function	Left Button (1)	Right Button (4)	Main touchpad (2)	Center button (3)
Drag	Click and hold, then use finger to drag the cursor on the touchpad		Tap twice (at the same speed as double-clicking a mouse button) then hold finger to the touchpad on the second tap to drag the cursor.	
Access context menu		Click once		
Scroll				Click and hold to move up/down/left/right.

NOTE: Keep your fingers dry and clean when using the touchpad. Also keep the touchpad dry and clean. The touchpad is sensitive to finger movements. Hence, the lighter the touch, the better the response. Tapping too hard will not increase the touchpad's responsiveness.

Using the Keyboard

The keyboard has full-sized keys and an embedded keypad, separate cursor keys, two Windows keys and twelve function keys.

Lock Keys and embedded mumeric keypad

The keyboard has three lock keys which you can toggle on and off.

Lock Key	Description
Caps Lock	When Caps Lock is on, all alphabetic characters typed are in uppercase.
Num lock <Fn>+<F11>	When Num Lock is on, the embedded keypad is in numeric mode. The keys function as a calculator (complete with the arithmetic operators +, -, *, and /). Use this mode when you need to do a lot of numeric data entry. A better solution would be to connect an external keypad.
Scroll lock <Fn>+<F12>	When Scroll Lock is on, the screen moves one line up or down when you press the up or down arrow keys respectively. Scroll Lock does not work with some applications.

The embedded numeric keypad functions like a desktop numeric keypad. It is indicated by small characters located on the upper right corner of the keycaps. To simplify the keyboard legend, cursor-control key symbols are not printed on the keys.

Desired Access	Num Lock On	Num Lock Off
Number keys on embedded keypad	Type numbers in a normal manner.	
Cursor-control keys on embedded keypad	Hold <Shift> while using cursor-control keys.	Hold <Fn> while using cursor-control keys.
Main keyboard keys	Hold <Fn> while typing letters on embedded keypad.	Type the letters in a normal manner.

Windows Keys

The keyboard has two keys that perform Windows-specific functions.

Key	Icon	Description
Windows key ⊞		Pressed alone, this key has the same effect as clicking on the Windows Start button; it launches the Start menu. It can also be used with other keys to provide a variety of function: ⊞ + <Tab> Activates next taskbar button. ⊞ + <E> Opens the My Computer window ⊞ + <F1> Opens Help and Support. ⊞ + <F> Opens the Find: All Files dialog box. ⊞ + <R> Opens the Run dialog box. ⊞ + M Minimizes all windows. <Shift>+ ⊞ + <M> Undoes the minimize all windows action.
Application key		This key has the same effect as clicking the right mouse button; it opens the application's context menu.

Hot Keys

The computer employs hotkeys or key combinations to access most of the computer's controls like sreen brightness, volume output and the BIOS utility.

To activate hot keys, press and hold the **<Fn>** key before pressing the other key in the hotkey combination.

Hot Key	Icon	Function	Description
Fn-F1	?	Hot key help	Displays help on hot keys.
Fn-F2		Acer eSetting	Launches the Acer eSettings in Acer eManager.
Fn-F3		Acer ePowerManagement	Launches the Acer ePowerManagement in Acer eManager.
Fn-F4	Z^z	Sleep	Puts the computer in Sleep mode.
Fn-F5		Display toggle	Switches display output between the display screen, external monitor (if connected) and both.
Fn-F6		Screen blank	Turns the display screen backlight off to save power. Press any key to return.
Fn-F7		Touchpad toggle	Turns the internal touchpad on and off.
Fn-F8		Speaker toggle	Turns the speakers on and off.
Fn-↑		Volume up	Increases the speaker volume.

Hot Key	Icon	Function	Description
Fn-↓	🔊	Volume down	Decreases the speaker volume.
Fn-→	☼	Brightness up	Increases the screen brightness.
Fn-←	☀	Brightness down	Decreases the screen brightness

Special Key

You can locate the Euro symbol and US dollar sign at the upper-center and/or bottom-right of your keyboard. To type:

The Euro symbol

1. Open a text editor or word processor.

2. Either directly press the **<Euro>** symbol at the bottom-right of the keyboard, or hold **<Alt Gr>** and then press the**<5>** symbol at the upper-center of the keyboard.

The US dollar sign

1. Open a text editor or word processor.

2. Either directly press the **<Dollar>** key at the bottom-right of the keyboard, or hold **<Shift>** and then press the **<4>** key at the upper-center of the keyboard.

NOTE: This function varies by the operating system version.

NOTE: Some fonts and software do not support the Euro symbol. Please refer to www.microsoft.com/typography/faq/faq12.htm for more information.

Hardware Specifications and Configurations

Processor

Item	Specification
CPU type	AMD Turion^{TM} 64 ML-28/ML-32 processor at 1.6/1.8 GHz or higher with 128 KB L1 cache and 512 KB L2 cache, AMD Turion^{TM} 64 ML-30/ML-34/ML-37/ML-4 processor at 1.6/1.8/2.0/2.2 GHz or higher with 128 KB L1 cache and 1 MB L2 cache
Core logic	ATI RS480M+ ATI SB400
CPU package	Intel socketable 478pin Micro-BGA
CPU core voltage	1.308V (highest frequency mode) to 0.956V (low frequency mode) 0.748V (deeper sleep mode)

BIOS

Item	Specification
BIOS vendor	Phneoix
BIOS Version	3A03
BIOS ROM type	SST 39SF040A, 512KX8 CMOS Boot Block Flash Memory
BIOS ROM size	512KB
BIOS package	32-pin PLCC
Supported protocols	ACPI 1.0b, PC Card 95, SM BIOS 2.3, IEEE1284-ECP/EPP, PCI 2.2, PnP 1.0a, DMI 2.0, PS/2 keyboard and mouse, USB 2.0, VGA BIOS, CD-ROM bootable, IEEE 1394
BIOS password control	Set by setup manual

Second Level Cache

Item	Specification
Cache controller	Built-in CPU
Cache size	512KB/1MB
1st level cache control	Always enabled
2st level cache control	Always enabled
Cache scheme control	Fixed in write-back

System Memory

Item	Specification
Memory controller	AMD CPU built-in
Memory size	0MB (no on-board memory)
DIMM socket number	2 sockets
Supports memory size per socket	1024MB
Supports maximum memory size	2G (by two 1024MB SO-DIMM module)
Supports DIMM type	DDR Synchronous DRAM
Supports DIMM Speed	333 MHz
Supports DIMM voltage	2.5V and 1.25V
Supports DIMM package	200-pin soDIMM
Memory module combinations	You can install memory modules in any combinations as long as they match the above specifications.

Memory Combinations

Slot 1	Slot 2	Total Memory
0MB	128MB	128MB
0MB	256MB	256MB
0MB	512MB	512MB
0MB	1024MB	1024MB
128MB	128MB	256MB
128MB	256MB	384MB
128MB	512MB	640MB
1284MB	1024MB	1152MB
256MB	128MB	384MB
256MB	256MB	512MB
256MB	512MB	768MB
256MB	1024MB	1280MB
512MB	128MB	640MB
512MB	256MB	768MB
512MB	512MB	1024MB
512MB	1024MB	1536MB
1024MB	0MB	1024MB
1024MB	128MB	1125MB
1024MB	256MB	1280MB
1024MB	512MB	1536MB
1024MB	1024MB	2048MB

NOTE: Above table lists some system memory configurations. You may combine DIMMs with various capacities to form other combinations. On above table, the configuration of slot 1 and slot 2 could be reversed.

LAN Interface

Item	Specification
Chipset	Realtek RTC8110SBL(10/100/1000M) ; RTL8100C(10/100M)
Supports LAN protocol	10/100/1000Mbps
LAN connector type	RJ45
LAN connector location	Rear side
Features	Integrated 10/100 BASE-T transceiver Wake on LAN support compliant with ACPI 2.0 PCI v2.2

IR Interface

Item	Specification
Part name	VISHAY TFU6102F
Package	8-pin SMT type
Performance	4Mbit/s
Compliant	IrDA 1.1

Modem Interface

Item	Specification
Data modem data baud rate (bps)	56K

Modem Interface

Item	Specification
Supports modem protocol	V.90/V.92
Modem connector type	RJ11
Modem connector location	Rear side

Bluetooth Interface

Item	Specification
Chipset	built-in ATI SB400
Data throughput	723 bps (full speed data rate)
Protocol	Bluetooth 1.1 (Upgradeable to Bluetooth 1.2 when SIG specification is ratified).
Interface	USB 1.1
Connector type	Mini-USB

Wireless Module 802.11b/g (optional device)

Item	Specification
Chipset	built-in ATI SB400
Data throughput	11~54 Mbps
Protocol	802.11b+g
Interface	Mini-PCI type II

Wireless Module 802.11a/b/g (optional device)

Item	Specification
Chipset	built-in ATI SB400
Data throughput	11~54 Mbps
Protocol	802.11 a+b+g
Interface	Mini-PCI type II

6-in-1 card reader

Item	Specification
Chipset	TI PCI7411
Protocol	support MS/MS PRO/MMC/SD/SM/xD

Hard Disk Drive Interface

Item	Specification			
Vendor & Model Name	HGST HTS424030M9AT00/ Toshiba Pluto MK3025GAS/	HGST HTS424040M9AT00/ Toshiba Pluto MK4025GAS/	HGST MORAGA IC25N060ATMR04-0 Toshiba Pluto MK6025GAS	HGST MORAGA IC25N080ATMR04-0 Toshiba Pluto MK8025GAS
Capacity (MB)	30000	40000	60000	80000
Bytes per sector	512	512	512	512
Data heads	2	2	3/4 (for Toshiba)	4
Drive Format				
Disks	1	1	2	2

Hard Disk Drive Interface

Item	Specification			
Spindle speed (RPM)	4200 RPM	4200 RPM	4200 RPM	4200 RPM
Performance Specifications				
Buffer size	2048KB/	2048KB	8192KB	8192KB
Interface	ATA/ATAPI-6; ATA-6	ATA/ATAPI-6; ATA-6	ATA/ATAPI-6; ATA-6	ATA/ATA-6; ATA-6
Max. media transfer rate (disk-buffer, Mbytes/s)	372	372	350	350
Data transfer rate (host~buffer, Mbytes/s)	100 MB/Sec. Ultra DMA mode-5	100 MB/Sec. Ultra DMA mode-5	100 MB/Sec. Ultra DMA mode-5	100 MB/Sec. Ultra DMA mode-5
DC Power Requirements				
Voltage tolerance	5V(DC) +/- 5%	5V(DC) +/- 5%	5V(DC) +/- 5%	5V(DC) +/- 5%

Combo Drive Interface

Item	Specification	
Vendor & model name	DVD/CDRW KME UIDA760 (24x24x8x24x) DVD/CDRW QSI SBW-242C (24x24x8x24x)	
Performance Specification	With CD Diskette	With DVD Diskette
Transfer rate (KB/sec)	Sustained: Max 3.6Mbytes/sec	Sustained: Max 10.8Mbytes/sec
Buffer Memory	2MB	
Interface	Enhanced IDE(ATAPI) compatible	
Applicable disc format	DVD: DVD-ROM, (DVD-5, DVD-9, DVD-10, DVD-18),DVD-R (read, single border), DVD-RW, DVD-RAM (2.6GB, 4.7GB) CD: CD-DA, CD-ROM, CD-ROM XA, CD-R, CD-RW Photo (Multisession) Video CD, CD-Extra, (CD+), CD-test	
Loading mechanism	Load: Manual Release: (a) Electrical Release (Release Button) (b) Release by ATAPI command (c) Emergency Release	
Power Requirement		
Input Voltage	5 V +/- 5 % (Operating)	

DVD-Dual Interface

Item	Specification	
Vendor & model name	DVD Dual HLDS GWA-4040N	
Performance Specification	With CD Diskette	With DVD Diskette
Transfer rate (KB/sec)	Sustained: Max 3.6Mbytes/sec	Sustained: Max 10.8Mbytes/sec
Buffer Memory	2MB	
Interface	Enhanced IDE(ATAPI) compatible	

DVD-Dual Interface

Item	Specification
Applicable disc format	Support disc formats 1. Reads data in each CD-ROM, CD-ROM XA, CD-1, Video CD, CD-Extra and CD-Text 2. Reads data in Photo CD (single and Multi-session) 3. Reads standard CD-DA 4. Reads and writes CD-R discs 5. Reads and writes CD-RW discs 6. Reads and writes in each dVD+R/RW (Ver. 1.1) 7. Reads data in each DVD-ROM and DVD-R (Ver. 2.0 for Authoring) 8. Reads and writes in each DVD-R (Ver. 2.0 for general), DVD-RW and DVD+R/RW (Ver1.1)
Loading mechanism	Load: Manual Release: (a) Electrical Release (Release Button) (b) Release by ATAPI command (c) Emergency Release
Power Requirement	
Input Voltage	5 V +/- 5 % (Operating)

Audio Interface

Item	Specification
Audio Controller	ALC655
Audio onboard or optional	Built-in
Mono or Stereo	Stereo
Resolution	18 bit stereo digital to analog converter 18 bit stereo analog to digital converter
Compatibility	AC97
Mixed sound source	Line-in, CD
Voice channel	8/16-bit, mono/stereo
Sampling rate	44,1 KHz (48K byte for AC97 interface)
Internal microphone	Yes
Internal speaker / Quantity	Yes/2

Video Interface

Item	Specification
Chipset	ATI Mobility RADEON® X700
Package	MBGA 708 pin
Interface	PCIE x16
Supports ZV (Zoomed Video) port	Yes

Video Memory

Item	Specification
Chipset	ATI Mobility RADEON® X700
Memory size	64MB/128MB
Interface	DDR

USB Port

Item	Specification
Chipset	ATI SB400
USB Compliancy Level	2.0
OHCI	USB 1.1 and USB 2.0 Host controller
Number of USB port	4
Location	three on the left side; one on the rear side
Serial port function control	Enable/Disable by BIOS Setup

IEEE 1394 Port

Item	Specification
Chipset	TI PCI7411
Number of IEEE 1394 port	1
Location	Left side
Connector type	IEEE 1394

PCMCIA Port

Item	Specification
PCMCIA controller	TI PCI7411
Supports card type	Type-II
Number of slots	One type-II
Access location	Left panel
Supports ZV (Zoomed Video) port	No ZV support
Supports 32 bit CardBus	Yes

System Board Major Chips

Item	Controller
Core logic	ATI RS480M+ATI SB400
VGA	ATI Mobility RADEON® X700
LAN	BroadCom BCM4401 (10/100M); BCM5788M(1G)
IEEE 1394	TI PCI7411
USB 2.0	ATI SB400
Super I/O controller	PC 87392
MODEM	
Bluetooth	built-in ATI SB400
Wireless 802.11 b	built-in ATI SB400
Wireless 802.11 b+g	built-in ATI SB400
PCMCIA	TI PCI7411
Audio	ALC655
6-in-1 card reader	TI PCI7411

Keyboard

Item	Specification
Keyboard controller	KB 3910
Total number of keypads	88-/89-key
Windows logo key	Yes
Internal & external keyboard work simultaneously	1. Plug USB keyboard to the USB port directly: Yes 2. Use port replicator then plug a USB/PS 2 keyboard to the USB port/PS 2 port on the port replicator: Yes

Battery

Item	Specification
Vendor & model name	Sanyo 4UR18650F-2-QC140 Panasonic CGR-B/8B5AE Simplo 916-3020
Battery Type	Li-ion
Pack capacity	4400 mAh
Number of battery cell	8
Package configuration	4 cells in series, 2 series in parallel
Normal voltage	14.4V
Charge voltage	16.8+-0.2v

LCD 15 inch

Item	Specification		
Vendor & model name	AU: B150XG01	QDI QD15XL06-01	Hannstar HSD150PX14-A07
Screen Diagonal (mm)	381	15.0 inches	15.0 inches
Active Area (mm)	304.1x228.1	304.1x228.1	304.1x228.1
Display resolution (pixels)	1024x768 XGA	1024x768 XGA	1024x768 XGA
Pixel Pitch	0.297x0.297	0.099x0.297	0.297x0.297
Pixel Arrangement	R.G.B. Vertical Stripe	R.G.B. Vertical Stripe	R.G.B. Vertical Stripe
Display Mode	Normally White	Normally White	Normally White
Typical White Luminance (cd/m^2) also called Brightness	180 (5 point average) 150 (5 point average)	160	150
Luminance Uniformity	N/A	N/A	70
Contrast Ratio	300	300	250
Response Time (Optical Rise Time/Fall Time)msec	24/11 15/35	8/17	10/25
Nominal Input Voltage VDD	+3.3V Typ.	+3.3V	3.3V
Typical Power Consumption (watt)	5.6/5.7	3.96	N/A
Weight	550	570	600
Physical Size(mm)	317.3x242.0x6.0	317.3x242.0x5.9	317.3x242.0x6.5
Electrical Interface	1 channel LVDS	1 channel LVDS	1 channel LVDS
Support Color	262K colors (RGB 6-bit data driver)	262,144	262,144

LCD 15 inch

Item	Specification		
Viewing Angle (degree) Horizontal: Right/Left Vertial: Upper/Lower	40/40 10/30	45/45 15/35	40/40 20/40
Temperature Range(°C) Operating Storage (shipping)	0 to +50 -20 to +60	0 to +50 -25 to +60	0 to +50 -20 to +60

LCD 15 inch and 15.4 inch

Item	Specification		
Vendor & model name	SAMSUNG LTN150XB-L03	Hitachi TX38D81VC1CAB	LCD 15.4" WXGA QDI
Screen Diagonal (mm)		15.0 inches, 381	390.1
Active Area (mm)	304.1x228.1	304.1x228.1	331.2x207.0
Display resolution (pixels)	1024x768 XGA	1024x768 XGA	1280x800 WXGA
Pixel Pitch	0.297x0.297	0.297x0.297	0.2588x0.2588
Pixel Arrangement	R.G.B. Vertical Stripe	R.G.B. Vertical Stripe	R.G.B. Vertical Stripe
Display Mode	Normally White	Transmissive & normally White	Normally White
Typical White Luminance (cd/m^2) also called Brightness	160	170	185
Luminance Uniformity	N/A	40	1.4 (5pts)
Contrast Ratio	200	200	400
Response Time (Optical Rise Time/Fall Time)msec	10/30(typ)	30/30	5/20
Nominal Input Voltage VDD	+3.3V	+3.3V	+3.3V Typ.
Typical Power Consumption (watt)	4.6 for backlight unit only	N/A	4.38
Weight	585	580	585
Physical Size(mm)	317.3x242.1x6.0	317.3x242.1x6.0	344x222.0x6.35 max
Electrical Interface	1 channel LVDS	1 channel LVDS	1 channel LVDS
Support Color	262K	262K	262K colors (RGB 6-bit data driver)
Viewing Angle (degree) Horizontal: Right/Left Vertial: Upper/Lower	45/45 25/45	40/40 20/40	15/35 45/45
Temperature Range(°C) Operating Storage (shipping)	N/A	0 to +40 -20 to +60	0 to +50 -25 to +60

LCD Inverter

Item	Specification
Vendor & model name	SUMIDA TWS-449-147
Brightness conditions	Vadj=3.3V
Input voltage (V)	8~20

LCD Inverter

Item	Specification
Input current (mA)	350 (max)
Output voltage (V, rms)	1600 (no load)
Output current (mA, rms)	5.6~5.4
Output voltage frequency (k Hz)	55~58K Hz

AC Adaptor

Item	Specification
Input rating	90V AC to 264V AC, 47Hz to 63Hz
Maximum input AC current	1.7A
Inrush current	220A@115VAC 220A@230VAC
Efficiency	82% min. @115VAC input full load

System Power Management

ACPI mode	Power Management
Mech. Off (G3)	All devices in the system are turned off completely.
Soft Off (G2/S5)	OS initiated shutdown. All devices in the system are turned off completely.
Working (G0/S0)	Individual devices such as the CPU and hard disc may be power managed in this state.
Suspend to RAM (S3)	CPU set power down VGA Suspend PCMCIA Suspend Audio Power Down Hard Disk Power Down CD-ROM Power Down Super I/O Low Power mode
Save to Disk (S4)	Also called Hibernate state. System saves all system states and data onto the disc prior to power off the whole system.