

chapter 1

PRODUCT DESCRIPTION

1.1 Computer Features and Models

The Compaq Armada E500 and Armada V300 Series of Personal Computers offer advanced modularity, Intel Pentium II, III, and Intel Celeron processors with 64-bit architecture, industry-leading Accelerated Graphics Port (AGP) implementation, and extensive multimedia support. The computers provide desktop functionality and connectivity through the optional expansion base, convenience base, or port replicator.



Figure 1-1. Compaq Armada E500 and Armada V300 Personal Computers

Models

The Armada E500 models are shown in Table 1-1. The computer model designation is composed of a group of characters that define each model's features.

Table 1-1
Compaq Armada E500
Models and Model Naming Convention

Key																
A	E	5		P3	450	T	4	X	12	D	M	64	95	N	S	F
1	2	3	4	5-6	7-9	10	11	12	13-14	15	16	17-19	20-21	22	23	24
KEY	DESCRIPTION				OPTIONS											
1	Brand designator				A = Armada											
2	Segment designator				E = Expansion											
3	Series				5 = 500											
4	Blank															
5-6	Processor type				P3 = Intel Pentium III				P2 = Intel Pentium II							
7-9	Processor speed				450 = 450 MHz				400 = 400 Mhz				366 = 366 MHz			
10	Panel type				T = TFT											
11	Panel size				4 = 14.x"				3 = 13.x"				2 = 12.x"			
12	Panel resolution				X = XGA											
13-14	Hard drive size (in GB, 1-2 digits)				12 = 12.0 GB				6 = 6.0 GB				4 = 4.3 GB			
15	Optical drive				D = 24X Max CD-ROM drive											
16	Integrated communication				M = Mini PCI V.90 modem				C = NIC/modem combo				0 = none			
17-19	RAM (in MB, 2-3 digits)				64 = 64 MB											
20-21	Operating system				98 = Windows 98				58 = Windows 95/98 dual install				N4 = Windows NT 4.0			
22	NAFTA				N = NAFTA											
23	Pointing device				S = Pointing stick P = TouchPad											
24	Security															

1	2	3	4	5-6	7-9	10	11	12	13-14	15	16	17-19	20-21	22	23	24	SKU#
A	E	5		P3	450	T	3	X	6	D	0	64	58				161604-XX1
A	E	5		P3	450	T	3	X	6	D	0	64	98				161604-XX4
A	E	5		P3	450	T	3	X	6	D	0	64	N4				161604-XX6
A	E	5		P3	450	T	3	X	6	D	M	64	58				161605-XX1
A	E	5		P3	450	T	3	X	6	D	M	64	58				161605-XX3
A	E	5		P3	450	T	3	X	6	D	M	64	N4				161605-XX6
A	E	5		P3	450	T	3	X	6	D	M	64	N4				161605-XX7
A	E	5		P3	450	T	3	X	6	D	C	64	58				164749-XX1
A	E	5		P3	450	T	3	X	6	D	C	64	N4				164749-XX6
A	E	5		P3	450	T	4	X	12	D	0	64	58				127669-XX1
A	E	5		P3	450	T	4	X	12	D	0	64	98				127669-XX4
A	E	5		P3	450	T	4	X	12	D	0	64	N4				127669-XX6
A	E	5		P3	450	T	4	X	12	D	M	64	58				127670-XX1
A	E	5		P3	450	T	4	X	12	D	M	64	58				127670-XX3
A	E	5		P3	450	T	4	X	12	D	M	64	N4				127670-XX6
A	E	5		P3	450	T	4	X	12	D	M	64	N4				127670-XX7
A	E	5		P3	450	T	4	X	12	D	C	64	58				164751-XX1
A	E	5		P3	450	T	4	X	12	D	C	64	N4				164751-XX6
A	E	5		P2	400	T	4	X	6	D	0	64	58				152675-XX1
A	E	5		P2	400	T	4	X	6	D	0	64	98				152675-XX4
A	E	5		P2	400	T	4	X	6	D	0	64	N4				152675-XX6
A	E	5		P2	400	T	4	X	6	D	M	64	58				152676-XX1
A	E	5		P2	400	T	4	X	6	D	M	64	58				152676-XX3
A	E	5		P2	400	T	4	X	6	D	M	64	N4				152676-XX6
A	E	5		P2	400	T	4	X	6	D	M	64	N4				152676-XX7
A	E	5		P2	400	T	4	X	6	D	C	64	58				164748-XX1
A	E	5		P2	400	T	4	X	6	D	C	64	N4				164748-XX6
A	E	5		P2	366	T	2	S	4	D	0	64	58				155058-XX1
A	E	5		P2	366	T	2	S	4	D	0	64	98				155058-XX4
A	E	5		P2	366	T	2	S	4	D	0	64	N4				155058-XX6
A	E	5		P2	366	T	2	S	4	D	M	64	58				155059-XX1
A	E	5		P2	366	T	2	S	4	D	M	64	58				155059-XX3
A	E	5		P2	366	T	2	S	4	D	M	64	N4				155059-XX6
A	E	5		P2	366	T	2	S	4	D	M	64	N4				155059-XX7

The Armada V300 models are shown in Table 1-2. The computer model designation is composed of a group of characters that define each model's features.

Table 1-2
Compaq Armada V300
Models and Model Naming Convention

Key																
A	V	3		C2	466	T	4	X	4	D	M	64	95	N	S	F
1	2	3	4	5-6	7-9	10	11	12	13-14	15	16	17-19	20-21	22	23	24
KEY	DESCRIPTION				OPTIONS											
1	Brand designator				A = Armada											
2	Segment designator				V = Versatility											
3	Series				3 = 300											
4	Blank															
5-6	Processor type				C2 = Intel Celeron 2											
7-9	Processor speed				466 = 466 MHz				400 = 400 MHz							
10	Panel type				T = TFT				S = STN							
11	Panel size				4 = 14.x"				2 = 12.x"							
12	Panel resolution				X = XGA				S= SVGA							
13-14	Hard drive size (in GB, 1-2 digits)				4 = 4.3 GB											
15	Optical drive				D = 24X Max CD-ROM drive											
16	Integrated communication				M = Mini PCI V.90 C = NIC/modem				0 = none combo							
17-19	RAM (in MB, 2-3 digits)				64 = 64 MB				32 = 32 MB							
20-21	Operating system				98 = Windows 98				58 = Windows 95/98 dual install				N4 = Windows NT 4.0			
22	NAFTA				N = NAFTA											
23	Pointing device				P = TouchPad											
24	Security															

1	2	3	4	5-6	7-9	10	11	12	13-14	15	16	17-19	20-21	22	23	24	SKU#
A	V	3		C2	466	T	4	X	4	D	C	58	64				158984-XX2 ¹
A	V	3		C2	466	T	4	X	4	D	C	N4	64				158984-XX6 ¹
A	V	3		C2	466	T	4	X	4	D	0	58	64				117734-XX2 ¹
A	V	3		C2	466	T	4	X	4	D	0	98	64				117734-XX4 ¹
A	V	3		C2	466	T	4	X	4	D	0	N4	64				117734-XX6 ¹
A	V	3		C2	466	T	4	X	4	D	M	58	64				117735-XX2 ¹
A	V	3		C2	466	T	4	X	4	D	M	58	64				117735-XX3 ¹
A	V	3		C2	466	T	4	X	4	D	M	N4	64				117735-XX6 ¹
A	V	3		C2	466	T	4	X	4	D	M	N4	64				117735-XX7 ¹
A	V	3		C2	400	T	2	S	4	D	C	58	64				158983-XX2 ²
A	V	3		C2	400	T	2	S	4	D	C	N4	64				158983-XX6 ²
A	V	3		C2	400	T	2	S	4	D	0	58	64				117732-XX2 ²
A	V	3		C2	400	T	2	S	4	D	0	98	64				117732-XX4 ²
A	V	3		C2	400	T	2	S	4	D	0	N4	64				117732-XX6 ²
A	V	3		C2	400	T	2	S	4	D	M	58	64				117733-XX2 ²
A	V	3		C2	400	T	2	S	4	D	M	58	64				117733-XX3 ²
A	V	3		C2	400	T	2	S	4	D	M	N4	64				117733-XX6 ²
A	V	3		C2	400	T	2	S	4	D	M	N4	64				117733-XX7 ²
A	V	3		C2	400	S	2	S	4	D	0	58	32				117730-XX2 ²
A	V	3		C2	400	S	2	S	4	D	0	98	32				117730-XX4 ²
A	V	3		C2	400	S	2	S	4	D	0	N4	32				117730-XX6 ²
A	V	3		C2	400	S	2	S	4	D	M	58	32				117731-XX2 ²
A	V	3		C2	400	S	2	S	4	D	M	58	32				117731-XX3 ²
A	V	3		C2	400	S	2	S	4	D	M	N4	32				117731-XX6 ²
A	V	3		C2	400	S	2	S	4	D	M	N4	32				117731-XX7 ²

¹ 9-cell Lithium Ion main battery pack

² 6-cell Lithium ion main battery pack

Features

The computer has the following features:

- The following processors are available, varying by computer model:
 - The Armada E500 features an Intel Pentium III 450-MHz processor or Intel Pentium II 400- or 366-MHz processor, with 256-KB integrated cache.
 - The Armada V300 features an Intel Celeron 466- or 400-MHz processor, both with 128-KB integrated L2 cache.
- ATI RAGE LT Pro, 4-MB SGRAM (synchronous graphics)
- The following standard memory is available, varying by computer model:
 - The Armada E500 is equipped with 64-MB high-performance Synchronous DRAM (SDRAM), expandable to 512 MB.
 - The Armada V300 is equipped with 64- or 32-MB high-performance SDRAM, expandable to 512 MB.
- Microsoft Windows 95, Windows 98 or Windows NT Workstation 4.0 preinstalled
- The following displays are available, varying by computer model:
 - The Armada E500 features a 14.1-inch, XGA, TFT (1024 × 768), 13.3-inch, XGX, TFT (1024 × 768) or 12.1-inch, SVGA, TFT (800 x 600) display, all with over 16.8 million colors.
 - The Armada V300 features a 14.1-inch XGA TFT (1024 × 768), 12.1-inch SVGA TFT (800 x 600), or 12.1-inch SVGA STN (800 x 600) display, all with over 16.8 million colors.
- The following keyboards are available, varying by computer model:
 - The Armada E500 supports a TouchPad or pointing stick keyboards.
 - The Armada V300 is equipped with a TouchPad keyboard.

- Mini PCI 56K V.90 modem, or optional Mini PCI V.90 modem plus 10/100 NIC combination card
- The following PC Card features are available, varying by computer model:
 - The Armada E500 features two Type II PC Card slots with support for both 32-bit CardBus and 16-bit PC Cards; Zoomed video is supported in the bottom slot.
 - The Armada V300 features one Type II PC Card slot with support for both 32-bit CardBus and 16-bit PC Cards.
- External AC adapter with power cord
- The following battery packs are available, varying by computer model:
 - The Armada E500 supports a 9- or 6-cell Lithium ion (Li ion) primary battery pack in the battery bay or DualBay, and a 6-cell Li ion MultiBay battery pack in the MultiBay; supporting up to three battery packs in the computer at one time.
 - The Armada V300 supports a 9- or 6-cell Li ion primary battery pack in the battery bay and a 6-cell Li ion MultiBay battery pack in the MultiBay.
- The following hard drives are available, varying by computer model:
 - The Armada E500 supports 12.0-, 6.0-, or 4.3-GB high-capacity SMART hard drives with DriveLock security and Prefailure Warranty.
 - The Armada V300 supports 6.0- or 4.3-GB high-capacity SMART hard drives with DriveLock security and Prefailure Warranty.
- Flexible MultiBay that accommodates a 24X MAX CD-ROM drive, DVD-ROM drive, SuperDisk LS-120 drive, 6-cell Li ion MultiBay battery pack, or secondary hard drive (when used with a Hard Drive MultiBay Adapter).
- Connectors for parallel, serial, audio in/out, external monitor, universal serial bus, external keyboard, and AC power
- Stereo speakers providing Compaq PremierSound 16-bit stereo sound

1.2 Intelligent Manageability

Intelligent Manageability consists of preinstalled software tools for the computer and Compaq servers that assist in tracking, troubleshooting, protecting, and maintaining the computer. It provides the following functions:

- Asset Management: provides detailed configuration and diagnostic information.
- Fault Management: prevents, predicts, and alerts of impending hardware problems.
- Security Management: protects unauthorized access to data and components.
- Configuration Management: optimizes the computer by providing the latest drivers, utilities, and software, which are available on CD ROM and the Compaq Web site at www.compaq.com/support/portables.

NOTE: For further help with Intelligent Manageability, select Start → Compaq Information Center → Intelligent Manageability

Accessing the Web Agent

The computer may have a preinstalled Web Agent that allows computer configuration information to be viewed using Web technology. To access this feature, select Start → Compaq Information Center → Insight Web Management.

If the computer does not have a preinstalled Web Agent, it can be downloaded from the Compaq Web site at www.compaq.com.

Asset Management

Asset Management enables component information to be retrieved when on the road or connected to the network.

Asset Management also enables the network administrator to remotely retrieve information from any Compaq computer connected to the network. The information can be used to assist in tracking and maintaining the computer and its components. It provides the following information:

- **Inventory information**—The network administrator can retrieve information about the computer over the network by using Compaq Insight Manager or any PC management tool provided by Compaq Solution Partners. Asset control information retrieved from the computer includes:
 - Manufacturer, model, and serial number of Compaq computers, monitors, hard drives, battery packs, memory boards, processor speeds, and operating systems
 - System board and ROM revision levels
 - BIOS settings
- **Diagnostic information**—Diagnostics for Windows includes information on hard drives, ports, video, sound, and other components. This application also allows multi-threaded tests to be run on hardware components. If problems are found, recommendations are provided.

All of the above information can be viewed, printed, or saved.

Fault Management

Fault Management features minimize downtime and data loss by monitoring system performance and generating the following alerts:

- **Hard drive alert**—provides 72-hour advance warning of impending hard drive problems and can automatically start optional backup software.
- **System temperature alert**—reports overheating. As the system temperature rises, this feature first adjusts fan speed and other cooling components, then displays an alert, then shuts down the system.
- **Battery pack alert**—reports charging problems and battery pack failure.
- **Monitor alert**—diagnoses and displays external monitor operational problems.
- **Memory alert**—reports memory board configuration changes when a memory board is removed, added, or reconfigured. It also provides the previous and current configurations for comparison.

The alerts work with or without network connection. If the computer is not connected to the network, the network administrator cannot receive alerts from the computer.

Fault Management Alerts

Alerts can be enabled, disabled, and tested, and software can be set to back up information whenever a hard drive alert occurs.

- While the computer is connected to a network, alerts pop up on the computer display and are simultaneously reported to the network console.
- System temperature alert—reports overheating. As the system temperature rises, this feature first adjusts fan speed and other cooling components, then displays an alert, then shuts down the system.

NOTE: A battery charging problem alert is reported only on the computer display.

- When the computer is not connected to a network, the user will receive a local alert.
- To set alerts, select the Intelligent Manageability icon in the system tray.

Security Management

Security Management features customize system security.

- **Power-On and Setup Passwords**—prevent unauthorized access to information and computer configuration.
- **DriveLock**—prevents unauthorized access to hard drives.
- **Device disabling**—prevents unauthorized data transfer through modems, serial ports, parallel ports, and infrared ports on the computer and an optional docking station.
- **QuickLock/QuickBlank**—locks the keyboard and clears the screen.
- **Ownership Tag**—displays ownership information during system restart.

Configuration Management

Configuration Management optimizes software upgrade and customer support procedures. Compaq provides support software to optimize the performance of the computer. This support software is accessible through a monthly CD-ROM subscription. Support software can also be downloaded from the Compaq Web site at www.compaq.com/support/portables.

Managing Power

The computer comes with a collection of power management features that allow battery operating time to be extended and power to be conserved. Use power management to monitor most computer components such as the hard drive, processor, and display.

Accessing Power Management

- In Windows 95, select Start → Settings → Control Panel → Power to view or adjust settings in Power Properties.
- In Windows NT 4.0, select Compaq Power instead of Power
- In Windows 98, select Power Management instead of Power.

Power Management Levels

To extend the life of batteries, use the Battery Conservation tab in Power Properties.

- If Windows 95 is running, select Start → Settings → Control Panel → Power to access Power Properties.
- In Windows NT 4.0, select Compaq Power instead of Power.
- In Windows 98, select Power Management instead of Power.

The level of battery conservation or the selection of preset power management levels can be customized.

1.3 Computer External Components

The external components on the display and left side of the computer are shown in Figure 1-2 and described in Table 1-3.

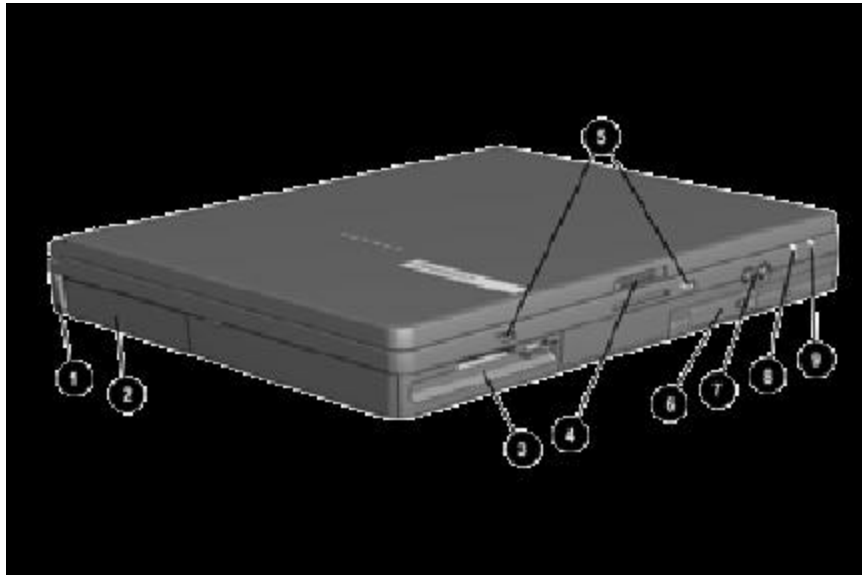


Figure 1-2. *Display and Left Side Components*

Table 1-3
Display and Left Side Components

Item	Component	Function
1	Tilt feet (2)	Tilt the computer for ease of use.
2	Battery bay	Accepts a 9- or 6-cell Lithium ion (Li ion) primary battery pack.
3	Armada E500: DualBay Armada V300: Fixed diskette drive	Accepts a removable diskette drive or 9- or 6-cell Li ion primary battery pack. Accepts diskettes.
4	Display release latch	Opens the computer.
5	Audio bass port	Enhances stereo sound.
6	MultiBay	Accepts the following MultiBay devices: CD-ROM drive, DVD-ROM drive, hard drive (in Hard Drive MultiBay Adapter), SuperDisk LS-120 Drive, 6-cell Li ion MultiBay battery pack.
7	Volume buttons	Adjust the volume of the stereo speakers.
8	Power/suspend light (green)	On: Power is turned on. Off: Power is turned off. Blinking: Computer is in Suspend.* NOTE: The power/suspend light also blinks if a battery pack that is the only source of power available to the computer reaches a critical low-battery condition while Hibernation is disabled.
9	Battery light (green)	On: A battery pack is charging. Off: No battery packs are changing. Blinking: A battery pack that is the only available power source has reached a low-battery condition.

*In Windows 98 the term Standby replaces the term Suspend.

The external components on the right side of the computer are shown in Figure 1-3 and are described in Table 1-4.

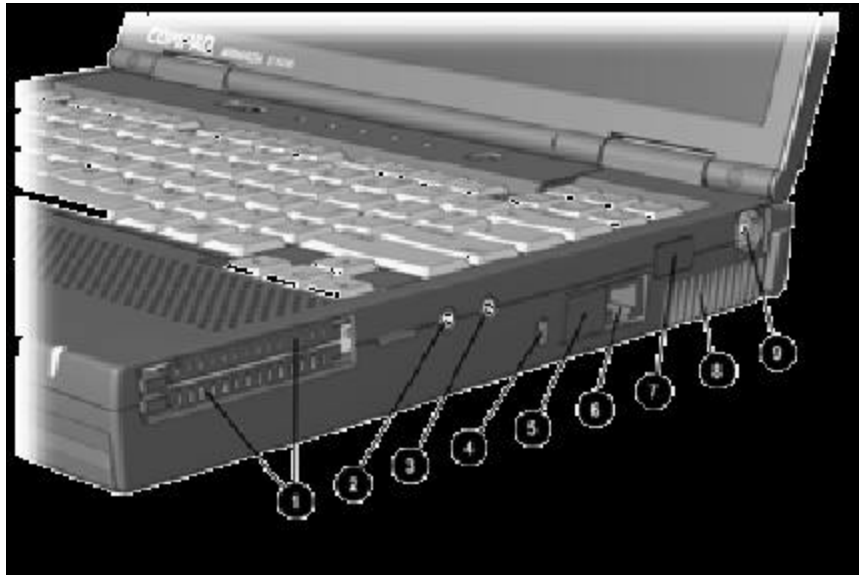


Figure 1-3. *Right Side Components*

Table 1-4
Right Side Components

Item	Component	Function
1	PC Card slots*	Supports 32-bit (CardBus) and 16-bit PC Cards. * The Armada E500 has two PC Card slots; the Armada V300 has only one PC Card slot.
2	Stereo speaker/headphone jack	Connects stereo speakers, headphones, or headset. This jack is driven by an amplifier and has volume control. The internal computer speakers are turned off when external speakers or headphones are plugged into this jack.
3	Mono microphone jack	Connects a mono microphone, disabling the built-in microphone.
4	Security cable slot	Accepts an optional security cable to secure the computer to a fixed object to prevent theft.
5	RJ-11 jack (internal modem models only)	Connects the modem cable to an internal modem. NOTE: A modem cable is included with internal modem models.
6	RJ-45 jack (internal network interface card models only)	Connects the network cable.
7	Infrared port	Provides wireless communication between the computer and another infrared-equipped device using an infrared beam.
8	Air vent	Provides for airflow to cool internal components.
9	Composite TV connector	Connects a television, VCR, camcorder, or overhead projector.

The external components on the rear of the computer are shown in Figure 1-4 and described in Table 1-5.

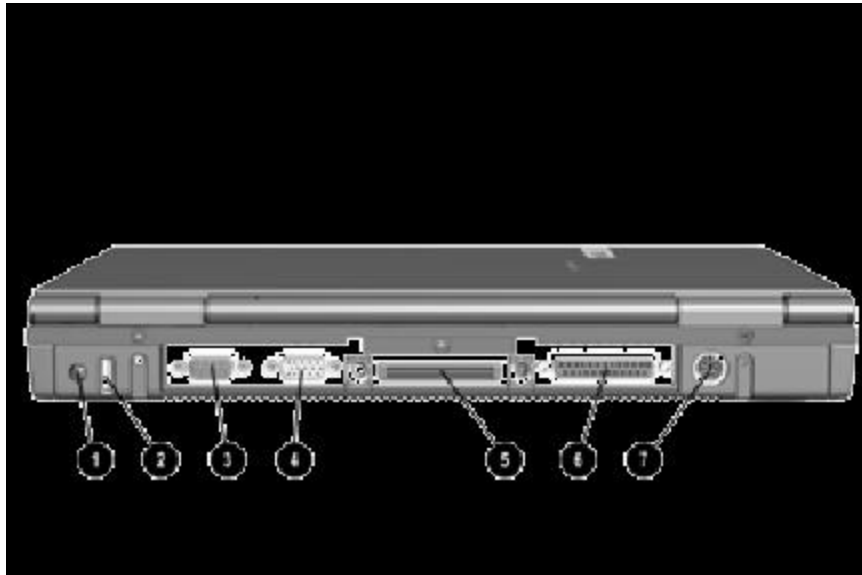


Figure 1-4. *Rear Components*

Table 1-5
Rear Components

Item	Component	Function
1	AC Adapter connector	Connects the AC power adapter.
2	Universal Serial Bus (USB) connector	<p>Connects USB devices, such as cameras for video conferencing, or hubs which connect multiple USB devices.</p> <p>The USB connector is a powered hub. When running Windows 95 or higher or Windows NT, any combination of up to five powered or unpowered hubs can be connected in any sequence, as long as two unpowered hubs are not connected next to each other.</p> <p>When running a lower version of Windows or Windows NT, or if using a different operating system, up to two hubs can be connected.</p>
3	External monitor connector	Connects an optional external monitor, overhead projector, or TV adapter.
4	Serial connector	Connects optional serial devices, such as a mouse.
5	Docking connector	Connects the computer to the expansion base, convenience base, or port replicator.
6	Parallel connector	Connects an optional parallel device, such as a printer.
7	Keyboard/mouse connector	Connects an optional full-sized keyboard or a mouse. Both external mouse and computer pointing device are active. An optional splitter/adaptor allows both an external keyboard and mouse to be used at the same time.

Computer keyboard components are shown in Figure 1-5 and described in Table 1-6.



Figure 1-5. Keyboard Components

Table 1-6
Keyboard Components

Item	Component	Function
1	Power switch	Turns the computer on or off or exits Suspend ¹ .
2	Suspend button	Initiates or exits Suspend ¹ . When pressed with the Fn key, initiates Hibernate.
3	Display switch	Turns off the display if it is closed while the computer is turned on.
4	Page up and page down keys	Move to the previous or next screen.
5	Embedded numeric keypad	Converts keys to numeric keypad.
6	Cursor-control keys	Move the cursor around the screen.
7	Windows application key	Displays shortcut menu for item beneath mouse cursor.
8	TouchPad (TouchPad models only)	Moves the mouse cursor, selects, and activates.
9	Left and right TouchPad buttons (TouchPad models only)	Function like the left and right mouse buttons on an external mouse.
10	Microsoft logo key	Displays the Windows Start menu.
11	Caps lock key	Turns on the caps lock function.

Additional computer keyboard components are shown in Figure 1-6 and described in Table 1-7.



Figure 1-6. Keyboard Components (continued)

Table 1-7
Keyboard Components (continued)

Item	Component	Function
1	Hard drive light (green)	Turns on when the hard drive is being accessed.
2	MultiBay light (green)	Turns on when a MultiBay device is being accessed or a battery pack in the MultiBay is charging or waiting to be charged.
3	Num lock light	Turns on when the numeric lock function is on.
4	Caps lock light	Turns on when the caps lock function is on.
5	Scroll lock light	Turns on when the scroll function is on.
6	Scroll lock key	Turns on the scroll function.
7	Num lock key	Turns on the numeric lock function.
8	Pointing stick	Moves the mouse cursor.
9	Stereo speakers	Produce stereo sound.
10	Left and right mouse buttons	Function like left and right mouse buttons on an external mouse.
11	Fn key	Used with hotkeys to perform preset hotkey functions.
12	F1 through F12 function keys	Perform preset functions.

The external components on the bottom of the computer are shown in Figure 1-7 and are described in Table 1-8.

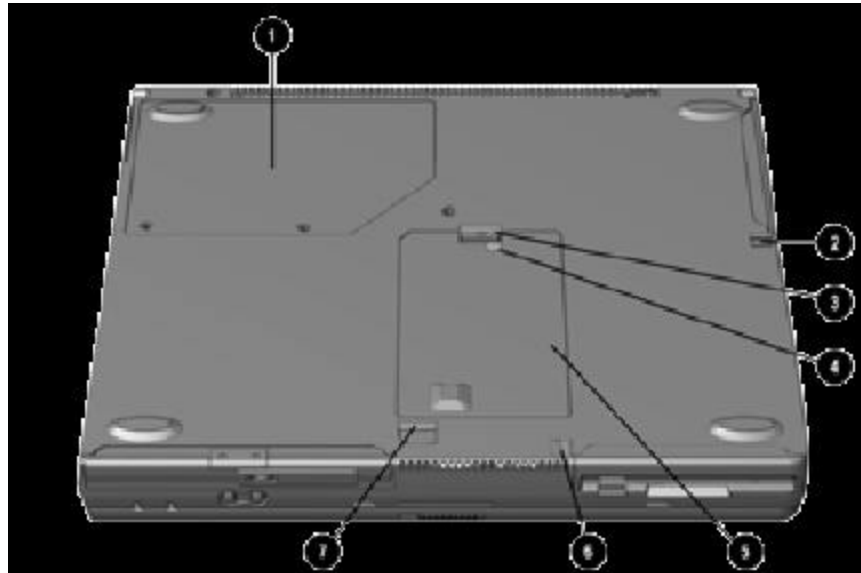


Figure 1-7. Bottom Components

Table 1-8
Bottom Components

Item	Component	Function
1	Mini PCI slot cover	Contains the mini PCI modem or network interface card.
2	Battery release latch	Releases the battery from the battery bay.
3	Hard drive cover release latch	Releases the hard drive cover.
4	Hard drive cover screw	Secures the hard drive cover.
5	Hard drive cover	Covers the hard drive bay.
6	Diskette drive release latch	Releases the device from the DualBay on the Armada E500. Releases the diskette drive bezel from the Armada V300.
7	MultiBay release latch	Releases the MultiBay device.


1.4 Design Overview

This section presents a design overview of key parts and features of the computer. Refer to Chapter 3 for the illustrated parts catalog and Chapter 5 for removal and replacement procedures.

The system board provides the following device connections:

- Memory expansion board
- Hard drive
- Display
- Keyboard/TouchPad or pointing stick
- Audio
- Intel Pentium III, II, or Celeron processors
- Fan
- PC Cards
- Modem or modem/NIC

The Armada E500 and Armada V300 computers use an electrical fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software applications. Exhaust air is displaced through the ventilation grill located on the right side of the computer.

 **CAUTION:** To properly ventilate the computer, allow at least a 3-inch (7.6 cm) clearance on the left and right sides of the computer.
