Apple PowerBook Duo Computers

PowerBook Duo 250 and PowerBook Duo 270c

Product Description

The award-winning Apple® PowerBook Duo™ computers set a new standard in lightweight notebook computers. The PowerBook Duo notebook computers weigh less than 5 pounds and provide exceptional performance, with features such as an active-matrix color or gray-scale display, a 33-megahertz 68030 processor, up to 24 or 32 megabytes of RAM, and more. While each PowerBook Duo provides a full-featured, powerful notebook system, it can also take advantage of the features of a complete Macintosh® desktop system through advanced docking technology.

The new PowerBook Duo 250 is the first notebook computer to bring active-matrix screen quality to a computer that weighs less than 5 pounds. Its display offers bright, sharp, gray-scale image resolution, which reduces eyestrain. The new PowerBook Duo 270c is the industry's first 16-bit-color notebook computer, displaying thousands of colors simultaneously in bright, sharp contrast on its active-matrix screen. The PowerBook Duo 270c also offers top-of-the-line processing speed, with a 33-megahertz 68030 processor and a built-in 68882 math coprocessor. Both new systems use high-capacity Type II nickel-metal-hydride batteries, for fast charging capability and long battery life. The PowerBook Duo 250 provides 2.5 to 6 hours of power on a single battery charge, and the PowerBook Duo 270c provides 2 to 4 hours on a single charge.

All PowerBook Duo notebook computers can be expanded to take advantage of the rich feature set of a Macintosh desktop system. Users simply insert the PowerBook Duo into a PowerBook Duo Dock—a process as easy as inserting a videotape into a VCR. The docking system is instantly connected to a large display and an adjustable keyboard, and provides immediate access to network servers and printers. The PowerBook Duo Dock supports Apple displays up to 16 inches in size and has two full-size NuBus™ slots, so users can add the expansion capabilities they want. The PowerBook Duo Dock also includes an internal Apple SuperDrive™ and room for an additional hard disk drive, giving users ample storage space for their files.

PowerBook Duo computers provide users with an exciting alternative to purchasing separate desktop and notebook systems. Users are free from concerns about file and program management, since all of their files and applications travel with them on the PowerBook Duo computer. Software costs are reduced, since only one software license is needed for each application. And cable management is eliminated—all users have to do is insert the PowerBook Duo into the PowerBook Duo Dock.

Positioning

Each PowerBook Duo computer provides an extremely lightweight yet powerful notebook system that offers performance and features comparable to those of much larger, heavier notebook computers. The PowerBook Duo 250 is the industry's lightest active-matrix notebook computer, offering a sharp, clear gray-scale screen and outstanding battery life. The PowerBook Duo 270c is the industry's first 16-bit-color notebook computer, providing an active-matrix screen that can display thousands of colors simultaneously with bright, sharp contrast. With the addition of a PowerBook Duo Dock, the PowerBook Duo computer can be expanded to provide the capabilities of a complete Macintosh desktop system. And the modular product design helps protect customers' investments by allowing them to easily upgrade and adapt their system as their requirements change.

Key Selling Points

• **A powerful and light notebook computer** that's a member of the award-winning Apple PowerBook™ family. The PowerBook Duo includes all the capabilities customers need on the road, such as a serial port for printing, file transfer, or connection to networks; and an internal modem slot so they can add a modem for sending and receiving faxes and files. And it's now available with either active-matrix gray-scale or active-matrix color capabilities, making it the smallest and lightest active-matrix notebook computer available.

• **Complete flexibility and control.** Customers can use the PowerBook Duo whenever and wherever they choose, to work the way they want to. With the PowerBook Duo, users always have the right files with them, and the files are always up to date.

• **A high-performance desktop system.** The PowerBook Duo computer and the PowerBook Duo Dock form a complete desktop system that includes a 33-megahertz 68030 processor, a built-in or optional 68882 math coprocessor, 4 megabytes of RAM (expandable to 24 or 32 megabytes), and a hard disk ranging from 80 to 240 megabytes. The PowerBook Duo Dock includes an internal 1.4-megabyte Apple SuperDrive floppy disk drive, which (with appropriate software) works with Macintosh, Microsoft Windows, MS-DOS, and OS/2 floppy disks. A built-in hard disk is optional with the PowerBook Duo Dock, providing a second hard disk for the PowerBook Duo.

• **Cost-effective computing.** The PowerBook Duo can be tailored to the needs of each customer, since customers can choose the docking products they need, providing optimum performance at minimum cost. Each system can also be upgraded as needed, allowing users to keep up with the latest technology economically.

• **An innovative, award-winning design.** The PowerBook Duo has been recognized as a major improvement in computer design by *Fortune, Business Week, Time, U.S. News and World Report, InfoWorld, BYTE, PC Laptop, Scientific American,* and other business and computer journals.

Prospects

Prospects include customers who:
• Value small size and light weight in a notebook computer.
• Need a full-featured, powerful computer.
• Value the flexibility to take advantage of a desktop computer system— they appreciate having a large color screen, an adjustable keyboard, and expansion capabilities at their desks.
• Want the ability to make the transition from a desktop computer to a notebook computer quickly and easily, without having to plug in any cables or set any switches.
• Are concerned about the long-term cost of a computer, and want to invest in systems that have upgrade potential.
• Value ease of use in a computer system.

Q&A

Should I buy a PowerBook Duo or a PowerBook?

If you're looking for an incredibly lightweight, full-function PowerBook notebook computer, the PowerBook Duo is for you. It allows you to add extras, such as an external floppy disk drive, as you need them. You don't have to invest in features you don't use very often—features that add weight to the computer. The docking capability of the PowerBook Duo provides system flexibility, allowing you to take advantage of the advanced features of a Macintosh desktop system.

Apple PowerBook Duo Computers

The full-function notebook computer for people who want to carry just what they need.

By selling up:
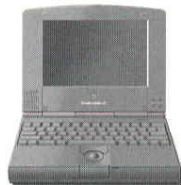+ Active-matrix color display
+ Higher screen resolution (640 x 480 pixels)
+ Thousands of colors at 640 x 400 resolution
+ Built-in math coprocessor
+ Choice of larger hard disk (240MB)
+ Up to 32MB RAM expansion
− Smaller display (8.4" diagonal)
− Slightly thicker size
− Shorter battery life (average maximum 4 hours vs. 6 hours)

By selling up:
+ Internal floppy disk drive
+ Bay for 3.5-inch hard disk
+ Two NuBus slots
+ Optional math coprocessor
+ Optional VRAM to support thousands of colors
+ Mouse
+ Key lock for security
+ Smaller footprint when PowerBook Duo is connected to external display

By selling up:
+ Larger hard disk (200MB)
+ Active-matrix gray-scale display

	PowerBook Duo 230	PowerBook Duo 250	PowerBook Duo 270c	PowerBook Duo MiniDock	PowerBook Duo Dock
CPU	68030 at 33 MHz	68030 at 33 MHz	68030 at 33 MHz; 68882 math coprocessor	—	Optional 68882 math coprocessor
RAM expansion	4MB expandable to 24MB	4MB expandable to 24MB	4MB expandable to 32MB	—	—
Expansion slots	Two: one for a modem, one for RAM	Two: one for a modem, one for RAM	Two: one for a modem, one for RAM	—	Two NuBus slots
Disk storage	80MB, 120MB, or 160MB hard disk; optional external Apple SuperDrive	200MB hard disk; optional external Apple SuperDrive	240MB hard disk; optional external Apple SuperDrive	Port for external Apple SuperDrive	Internal Apple SuperDrive; bay for optional 3.5-inch hard disk
Display capabilities	Built-in 9" backlit supertwist gray-scale display (16 levels); 640 x 400 pixels	Built-in 9" active-matrix gray-scale display (16 levels); 640 x 400 pixels	Built-in 8.4" backlit active-matrix display (256 colors); 640 x 480 pixels, or thousands of colors with 640 x 400 pixels	Video support for 256 colors on 16" and smaller Apple displays	Video support for 256 colors on 16" and smaller Apple displays (with additional VRAM, supports thousands of colors)
Internal modem	Optional PowerBook Express Modem	Optional PowerBook Express Modem	Optional PowerBook Express Modem	Pass-through port for modem	Pass-through port for modem
Battery	Nickel-metal-hydride; average life: 2 to 4.5 hours	High-capacity Type II nickel-metal-hydride; average life: 2.5 to 6 hours	High-capacity Type II nickel-metal-hydride; average life: 2 to 4 hours	—	—
Weight Size (HWD)	4.2 pounds 1.4 x 10.9 x 8.5"	4.2 pounds 1.4 x 10.9 x 8.5"	4.8 pounds 1.5 x 10.9 x 8.5"	1.24 pounds 2.1 x 10.6 x 3.2"	13.1 pounds 5.1 x 12.5 x 16.3"
Security	—	—	—	Slot for security cable	Key lock; slot for security cable
Ports	High-speed serial port to connect to printers, networks, and an external modem; modem port (with optional modem); power adapter port; docking connector	High-speed serial port to connect to printers, networks, and an external modem; modem port (with optional modem); power adapter port; docking connector	High-speed serial port to connect to printers, networks, and an external modem; modem port (with optional modem); power adapter port; docking connector	Two serial, Apple Desktop Bus™ (ADB), SCSI, video-output, power adapter, sound-input, sound-output, and external floppy disk drive ports; pass-through port for modem	Two serial, ADB, SCSI, video-output, sound-input, and sound-output ports; pass-through ports for modem and power to display

Apple PowerBook Computers

All the features you could want,
with you all the time.

By selling up:
+ *Video-output options (dual-display and mirror modes)*
+ *16-level gray-scale display*
+ *Greater memory expansion*
+ *Up to 35% performance increase*
+ *Support for PowerBook Express Modem*
+ *Built-in microphone*
+ *Security slot*

By selling up:
+ *Supertwist color display with 256 colors*
+ *Built-in math coprocessor*
− *Smaller display (9" diagonal)*

By selling up:
+ *Active-matrix monochrome display*
+ *Larger display (10" diagonal)*
− *Gray-scale display instead of color*

By selling up:
+ *Active-matrix color display with 256 colors*
+ *Higher screen resolution (640 x 480 pixels)*
+ *Choice of larger hard disk (160MB)*
− *Smaller display (8.4" diagonal)*

	PowerBook 145B	PowerBook 165	PowerBook 165c	PowerBook 180	PowerBook 180c
CPU	68030 at 25 MHz	68030 at 33 MHz	68030 at 33 MHz; 68882 math coprocessor	68030 at 33 MHz; 68882 math coprocessor	68030 at 33 MHz; 68882 math coprocessor
RAM expansion	4MB expandable to 8MB	4MB expandable to 14MB	4MB expandable to 14MB	4MB expandable to 14MB	4MB expandable to 14MB
Expansion slots	Two: one for a modem, one for RAM	Two: one for a modem, one for RAM	Two: one for a modem, one for RAM	Two: one for a modem, one for RAM	Two: one for a modem, one for RAM
Disk storage	Apple SuperDrive; 40MB or 80MB hard disk	Apple SuperDrive; 80MB or 160MB hard disk	Apple SuperDrive; 80MB or 120MB hard disk	Apple SuperDrive; 80MB or 120MB hard disk	Apple SuperDrive; 80MB or 160MB hard disk
Display capabilities	Built-in 10" monochrome, backlit supertwist display; 640 x 400 pixels	Built-in 10" backlit supertwist gray-scale display (16 levels); 640 x 400 pixels; video support for 256 colors on 16" and smaller Apple displays; supports some VGA and SVGA displays	Built-in 9" backlit supertwist display (256 colors); 640 x 400 pixels; video support for 256 colors on 16" and smaller Apple displays; supports some VGA and SVGA displays	Built-in 10" backlit active-matrix gray-scale display (16 levels); 640 x 400 pixels; video support for 256 colors on 16" and smaller Apple displays; supports some VGA and SVGA displays	Built-in 8.4" backlit active-matrix display (256 colors); 640 x 480 pixels; video support for 256 colors on 16" and smaller Apple displays; supports some VGA and SVGA displays
Internal modem	Optional PowerBook Fax/Data Modem	Optional PowerBook Express Modem or PowerBook Fax/Data Modem	Optional PowerBook Express Modem or PowerBook Fax/Data Modem	Optional PowerBook Express Modem or PowerBook Fax/Data Modem	Optional PowerBook Express Modem or PowerBook Fax/Data Modem
Battery	Nickel-cadmium; average life: 2.5 to 3 hours	Nickel-cadmium; average life: 2.5 to 3 hours	Nickel-cadmium; average life: 1.5 to 2 hours	Nickel-cadmium; average life: 2.5 to 3 hours	Nickel-cadmium; average life: 1 to 2 hours
Weight	6.8 pounds	6.8 pounds	7.0 pounds	6.8 pounds	7.1 pounds
Security	—	Slot for security cable	Slot for security cable	Slot for security cable	Slot for security cable
Ports	Two serial, ADB, SCSI, sound-input, sound-output, and power adapter ports	Two serial, ADB, SCSI, sound-input, sound-output, video-output, and power adapter ports	Two serial, ADB, SCSI, sound-input, sound-output, video-output, and power adapter ports	Two serial, ADB, SCSI, sound-input, sound-output, video-output, and power adapter ports	Two serial, ADB, SCSI, sound-input, sound-output, video-output, and power adapter ports

The PowerBook, on the other hand, is designed for users who prefer to have all the features they want built into their notebook computer. Each PowerBook includes a built-in floppy disk drive and a variety of built-in ports.

How do I transfer files to and from the PowerBook Duo without a floppy disk drive?

Several file-transfer methods are available:
- You can use LocalTalk® cables or a serial cable, and System 7 file sharing.
- You can use a PowerBook Express fax/data modem and Apple Remote Access software or electronic-mail software.
- You can use an external Apple SuperDrive and the PowerBook Duo MiniDock, or the built-in Apple SuperDrive in the PowerBook Duo Dock.

How does the PowerBook Duo extend battery life?

Apple's EverWatch™ battery-saver technology minimizes power consumption and extends battery life. EverWatch allows you to control a variety of power-saving features, such as backlight dimming, hard disk timeouts, and clock speed. It also provides a "sleep" state, which preserves the contents of memory and allows you to resume operations with a single keystroke. The battery automatically recharges while the computer is connected to the PowerBook Duo Dock or MiniDock. Typical operating time with a fully charged battery is 2 to 6 hours, depending on the computer model and the power-saving features being used.

Apple PowerBook Duo Dock

Product Description

The PowerBook Duo Dock provides docking capability for the entire PowerBook Duo line of notebook computers, so any PowerBook Duo computer can have access to the features of a complete Macintosh desktop system. The Dock has an improved top cover (available as an upgrade for older PowerBook Duo Dock models), which enables it to accommodate the slightly thicker PowerBook Duo 270c and to physically support heavy displays (up to 85 pounds). PowerLatch™ docking technology ensures an easy connection between the PowerBook Duo and the PowerBook Duo Dock. The PowerBook Duo Dock has 512K of built-in video RAM, and can be expanded to support up to 32,000 colors on displays up to 16 inches in size, or millions of colors on larger displays (requires NuBus card). It can also be configured with a 68882 math coprocessor to boost system performance.

Positioning

The PowerBook Duo Dock provides one-step docking for the PowerBook Duo computers—just insert the PowerBook Duo notebook computer into the Dock for instant connection to the features of a complete Macintosh desktop system.

Key Selling Points

- **PowerLatch docking technology** seamlessly integrates desktop and notebook operations, automatically connects users to available servers and printers, recognizes the display that's connected to the PowerBook Duo Dock, and takes advantage of expansion features. The PowerLatch automatic insert/eject feature provides a secure, one-step docking connection, protects work in progress, and inspires customer confidence.
- **Expansion capabilities** of the PowerBook Duo Dock include built-in SCSI support for peripherals, two 32-bit NuBus slots for expansion cards, and a 3.5-inch bay that supports a hard disk as large as 500 megabytes.

Prospects

The PowerBook Duo Dock is for customers who want access to the most advanced features of a desktop computer system, such as networking capability, extensive color support for large displays, and a built-in math coprocessor to handle computation-intensive tasks with ease.

Q&A

How does the PowerBook Duo Dock compare with docking stations from other notebook computer vendors?

Unlike docking stations offered by other manufacturers, the PowerBook Duo, together with the PowerBook Duo Dock, has been designed from the start to be both a high-performance notebook computer and a complete desktop computer.

Apple's exclusive PowerLatch docking technology provides a single-point, cable-free connection between the PowerBook Duo Dock and the PowerBook Duo. PowerLatch automatically senses when the system is docked, turns off all battery-saving features, and enables users to take advantage of a large color display, expansion cards, floppy disk drives, and other desktop capabilities. You don't need to reconfigure the system, adjust jumpers, set DIP switches, or edit CONFIG.SYS and AUTOEXEC.BAT files.

How can I use a PowerBook Duo 270c with an older PowerBook Duo Dock?

The PowerBook Duo 270c is slightly thicker than the PowerBook Duo 210, 230, and 250 (1.5 inches versus 1.4 inches). To accommodate the larger size, a new top cover is available (part number M1814Z/A) that is inexpensive and easy for customers to install. With the top cover upgrade, the PowerBook Duo Dock accommodates any PowerBook Duo notebook computer.

Additional Information

For additional information on the PowerBook Duo, please refer to the following materials:

Brochures

An Overview of Apple Products	
for K–12 and higher education	L0548LL/A
for business	L0557LL/A
Macintosh Duo™ System	L0297LL/A

Reference Guides

AppleFacts 8.93	L0327LL/C
AppleFacts 11.93 Supplement	L0556LL/A

Data Sheets

PowerBook Duo 230	L0339LL/A
PowerBook Duo 250	L0545LL/A
PowerBook Duo 270c	L0544LL/A
PowerBook Duo Dock and MiniDock	L0332LL/C
PowerBook Express Modem	L0334LL/A
PowerBook Duo System Accessories	L0331LL/A
PowerBook/DOS Companion™	L0391LL/A
AppleTalk Remote Access	L0088LL/A
PowerBook File Assistant	L0493LL/A