HP OmniBook 5500CS/CT

Familiarization Guide

This guide is for experienced HP Response Center personnel, CEs, and reseller technicians. That is, personnel that have already completed the HP Vectra PC family training course, or equivalent, and have at least six months of experience servicing the HP Vectra PCs.

It is a self-paced training guide designed to train you to install configure, and repair the OmniBook Notebook PC. You can follow it without having any equipment available.

Table of Contectnsontents

OmniBook Product Comparisons

	HP OmniBook 5500	HP OmniBook 5000	HP OmniBook 4000
Size Closed	•29.5 x 22.5 x 5.2 cm *(11.6 x 8.8 x 2.05 in)*	•29.5 x 22.6 x 4.9 cm *(11.6 x 8.9 x 1.93 in)*	v29.5 x 22.6 x 4.9 cm (11.6 x 8.9 x 1.93 in)
Weight	•3.4 kg (*7.5 lb*)	•3.08-3.18 kg (*6.8-7 lb*)	vDSTN (C): 3.13 kg (*6.9 lb*) vTFT (CT): 3.27 kg (*7.2 lb*)
Processor	•100-, 120-, and 133-MHz Intel Pentium processor	•75-, 90-, or 120-MHz Intel Pentium processor	v50-, 75-, or 100-MHz Intel 486DX2
Bus Architecture	32-bit PCI bus	32-bit PCI bus	ISA bus
Cache	256-KB external L2 cache	some models include: 256-KB external L2 cache	No L2 cache
Display	•10.4 and 12.1 - inch diagonal TFT: • SVGA (CTS): 800 x 600 x 64K colors (TFT) 11.3 - inch diagonal DSTN: SVGA: 800 X 600 X 256 colors •PCI local bus video; 1-MB video RAM vSVGA-out supports VGA & SVGA monitors (up to 1024 x 768 x 256 colors)	•10.4-inch diagonal: •VGA (C/CT): 640 x 480 x 65,536 colors (DSTN or TFT) •SVGA (CTS): 800 x 600 x 256 colors (TFT) •PCI local bus video; 1.5-MB video RAM vSVGA-out supports VGA & SVGA monitors (up to 1024 x 768 x 256 colors)	v10.3-diagonal DSTN (up to 256 colors) or v10.4-inch diagonal TFT (up to 65,536 colors) vVGA: 640 x 480 vLocal bus video; 1-MB display RAM vSVGA-out supports VGA & SVGA monitors (up to 1024 x 768 x 256 colors)

	HP OmniBook 5500	HP OmniBook 5000	HP OmniBook 4000
Power	•14.4Vdc Rechargeable Lithium-Ion battery •Battery life (approximate with one battery LiIon): 2 to 3 hrs •Battery (LiIon) recharges to high level in 4 hrs using AC adapter while PC is on or off •2-minute low-battery warning •AC adapter 100 to 240 Vac (50 to 60 Hz) input; 12 Vdc, 3.3 A output •Instant-on maintains computer in ready-to-work state for weeks on a full charge; returns you to your application or file instantly	•14.4Vdc Rechargeable Lithium-Ion or NiMH battery •Battery life (approximate with one battery): 2 to 3 hrs •Battery recharges to high level in 4 hrs using AC adapter while PC is on or off •2-minute low-battery warning •AC adapter 100 to 240 Vac (50 to 60 Hz) input; 12 Vdc, 3.3 A output •Instant-on maintains computer in ready-to-work state for weeks on a full charge; returns you to your application or file instantly	v14.4 Vdc rechargeable NiMH battery pack vBattery life (approximate): 3-4 hrs on DSTN DX2/50 2-3 hrs on TFT DX4/100 vAC adapter 100 to 240 Vac (50 to 60 Hz) input; 21 Vdc,1.35 A output Suspend-resume power management.
Removable Modules	•Floppy disk drive internal/external (can be replaced with a second battery CD ROM drive) •Hard disk drive •RAM •Standard Battery	•Floppy disk drive (can be replaced with a second battery for double battery life) •Hard disk drive •RAM •Battery	vFloppy disk drive (can be replaced with a second battery for double battery life) vHard disk drive vRAM vBattery
Mass Storage	•810-MB, 1.35-GB, 2.0GB hard disks	•540-MB, 810-MB, or 1.2-GB hard disks	v260-, 340-, 520-, or 810-MB hard disk options
RAM	v8 or 16-MB Models •upgradable to 64 MB •8-, 16-, or 32-MB RAM cards	v8- or 16-MB Models •upgradable to 64 MB •8-, 16-, or 32-MB RAM cards	v4-, 8-MB, or 16-MB RAM models vupgradable to 32 MB
Audio	•16-bit with Sound Blaster Pro compatible and MIDI support •Stereo sound via two built-in speakers	•16-bit with Sound Blaster and MIDI support •Stereo sound via two built-in speakers	v16-bit, Sound Blaster-compatible vStereo sound via two built-in stereo speakers

	HP OmniBook 5500	HP OmniBook 5000	HP OmniBook 4000
Input/Output	•9-pin, 115,200 - b/s, RS-232 port •25-pin EPP and ECP parallel port •SVGA-out (up to 1024 x 768 x 256); VGA-out (640 x 480 x 16M colors) • Fast-IR-IRDA compliant @ 4Mbps •Expansion bus connector •NTSC/PAL video-out port (RCA and SVideo) •Keyboard/mouse port •Headphone/stereo-out port •Stereo-in and microphone ports •MIDI/joystick port	•9-pin, 115,200 - b/s, RS-232 port •25-pin EPP and ECP parallel port •SVGA-out (up to 1024 x 768 x 256); VGA-out (640 x 480 x 65,536 colors) •115,200-baud, bidirectional infrared •Expansion bus connector •SCSI-2 port •NTSC/PAL video-out port •Keyboard/mouse port •Headphone/stereo-out port •Stereo-in and microphone ports •MIDI/joystick port	vg9-pin, 115,200 - b/s, RS-232 port v25-pin EPP and ECP parallel port vSVGA-out (up to 1024 x 768 x 256) v115,200 - baud, bi-directional infrared vExpansion bus connector vKeyboard/mouse port v Headphone/stereo-out port vMicrophone port vStereo-in port
Expandability	•One Type III PCMCIA slot (or use as two Type II slots) with 3.3-V or 5-V support vOptional docking system with two ISA-based slots, or one ISA and one PCI slot, parallel, serial, SVGA-out (up to 1024 x 768 x 256), keyboard, PS/2 mouse, MIDI/joystick, and audio.	•One Type III PCMCIA slot (or use as two Type II slots) with 3.3-V or 5-V support vOptional docking system with two ISA-based slots, or one ISA and one PCI slot, parallel, serial, SVGA-out (up to 1024 x 768 x 256), keyboard, PS/2 mouse, MIDI/joystick, and audio.	vOne Type III PCMCIA slot (or use as two Type II slots) vEnhanced port replicator with parallel, two serial, SVGA-out (up to 1024 x768), keyboard, PS/2 mouse, and SCSI ports; and PCMCIA slot (concurrent Type II and Type III)

	HP OmniBook 5500	HP OmniBook 5000	HP OmniBook 4000
Pre-installed Software	•Microsoft Windows 95 or vMicrosoft Windows for Workgroups 3.11 * •MS-DOS 6.22 •Plug and Play BIOS •HP PIM	•Microsoft Windows 95 or vMicrosoft Windows for Workgroups 3.11 * •MS-DOS 6.22 •Plug and Play BIOS •HP PIM	vMicrosoft Windows for Workgroups 3.11 vMS-DOS 6.2 vLaplink Remote Access™ vEasy connection to your desktop PC, network and desktop printers; works via cable or infrared.
Security Features	• 2-level password protection • PC ID (tattooing) and serialization • Drive lock • Kensington lock slots	•2-level password protection •PC ID (tattooing) •Kensington lock slots	vUser password vKensington lock slots

OmniBook 5500 Series: Product Features

Description

HP OmniBook 5500 notebook PCs feature industry leading performance with the powerful combination of Pentium processors and a true PCI bus for professionals who need Pentium desktop-to-go performance.

Models

This is a complete list of all the standard OmniBook 5500 models now available. Factory special options are not included in this listing. New models will continue to be introduced.

Please refer to the Hewlett-Packard Corporate Price List for currently available models and options.

Product	Description	HP Part #
HP OmniBook 5500CT	P-133, PCI BUS, 2.0GB HDD, 16MB RAM, LiIon Battery, 12.1" SVGA TFT Display, Three year warranty.	F1320A
HP OmniBook 5500CT	P-133, PCI BUS, 1.35GB HDD, 16MB RAM, LiIon Battery, 12.1" SVGA TFT Display, Three year warranty.	F1321A
HP OmniBook 5500CT	P-120, PCI BUS, 1.35GB HDD, 16MB RAM, LiIon Battery, 12.1" SVGA TFT Display, Three year warranty.	F1322A
HP OmniBook 5500CT	P-120, PCI BUS, 1.35GB HDD, 16MB RAM, LiIon Battery, 10.4" SVGA TFT Display, One year warranty.	F1323A
HP OmniBook 5500CT	P-120, PCI BUS, 1.35GB HDD, 16MB RAM, LiIon Battery, 10.4" SVGA TFT Display, One year warranty.	F1324A
HP OmniBook 5500CS	P-120, PCI BUS, 1.35GB HDD, 16MB RAM, LiIon Battery, 11.3" SVGA DSTN Display, One year warranty.	F1325A
HP OmniBook 5500CS	P-100, PCI BUS, 1.35GB HDD, 16MB RAM, LiIon Battery, 11.3 " SVGA DSTN Display, One year warranty.	F1326A
HP OmniBook 5500CS	P-100, PCI BUS, 1.35GB HDD, 8MB RAM, LiIon Battery, 11.3" SVGA DSTN Display, One year warranty.	F1327A
HP OmniBook 5500CT	P-100, PCI BUS, 810MB HDD, 8MB RAM, LiIon Battery, 10.4" SVGA TFT Display, One year warranty.	F1328A
HP OmniBook 5500CT	P-100, PCI BUS, 810MB HDD, 8MB RAM, LiIon Battery, 11.3" SVGA DSTN Display, One year warranty.	F1329A

Accessories

Description	Part #
8-MB RAM expansion card	F1134A
16-MB RAM expansion card	F1135A
32-MB RAM expansion card	F1136A
810-MB Hard Disk Drive	F1191A
1.35 GB Hard Disk Drive	F1192A
3.5 inch Internal/External Floppy Drive Module	F1195A
Quad-speed CD-ROM drive	F1319A
AC Adapter	F1044B
NiMH Battery Pack Module	F1073A
Standard LiIon Battery Pack Module	F1193A
Enhanced LiIon Battery Pack Module	F1194A
External Battery Charger (Charges up to two batteries concurrently)	F1338A
Automobile Adapter	F1064A
Docking system. Includes 2 full-length ISA slots, parallel, serial, SVGA-out, keyboard, PS/2 mouse, audio, MIDI/Joystick, SCSI-2 ports, supports PnP and hot docking. Motorized docking to ensure solid dock. Docking system only for the OmniBook 5000	F1189A

OmniBook 5500 enhancements over the OmniBook 5000.

- 133MHz Pentium CPU
- Internal CD ROM Option - 4X Toshiba or Teac drive
- Internal floppy drive can also be used externally using built in cable
- IBM Tracpoint III pointing device replaces the track ball.
- Chips and Technologies Inc. (65548) from the 65545 **PCI bus** VGA Controller with 1 MB of display RAM
- SVideo Output Port
- Larger display options (12.1" TFT SVGA and 11.3" STN SVGA)
- VLSI 82C147 fastIR controller and HP-OED FastIR optical module.
- Second battery is a "super" battery and has 150% of the capacity of the standard battery.

What comes in the box

- OmniBook 5500 mainframe
- Battery pack
- Recovery CD ROM
- AC adapter (P//N: F1044B), localized power cord
- User documentation: Quick Start Guide, support documentation, registration form
- Brochures for OmniBook accessories and Deskjet 320

Microprocessor

- Intel Pentium, 100 MHz w/16K internal cache and 256K L2 synchronous burst cache

w Intel Pentium, 120 MHz w/16K internal cache and 256K L2 synchronous burst cache

w Intel Pentium, 133 MHz w/16K internal cache and 256K L2 synchronous burst cache

Bus Architecture

PCI (Peripheral Component Interconnect)

Memory and Memory Slots

w 0MB on Board

w Max Possible RAM: 64MB

w 6-3-3-3 burst hit, self refreshed

w Type of memory boards: HP Proprietary Daughter boards, 2 user accessible slots on the bottom case.

w Expansion Memory Board Options:

8-MB RAM, p/n: F1134A

16-MB RAM, p/n: F1135A

32-MB RAM, p/n: F1136A

w RAM Manufacturer: Multiple Vendors: NEC, Samsung, etc.

w Cycle time: 70 ns

Possible Memory Configurations:

Memory Slot 1	Memory Slot 2	Total RAM
8MB	--	8MB
8MB	8MB	16MB
8MB	16MB	24MB
8MB	32MB	40MB
16MB	--	16MB
16MB	8MB	24MB
16MB	16MB	32MB
16MB	32MB	48MB
32MB	32MB	64MB

Mass storage

The hard disk drive can be removed by the user for easy upgrades. The hard drive is located on the bottom case and with the removal of one screw the hard drive can be replaced.

w Hard drive manufacturer: Toshiba (Subject to change. IBM and Maxtor are being looked at as possible second sources.)

2.5" Hard Drive	810 MB	1,350MB	2.0GB
	ATA2 Interface	ATA2 Interface	ATA2 Interface
Recording Method	PRML (Partial Response Maximum likelihood)	PRML (Partial Response Maximum likelihood)	PRML (Partial Response Maximum likelihood)
Heads	MR (Magneto Resistive)	MR (Magneto Resistive)	MR (Magneto Resistive)
Average seek (read)	13 ms	13 ms	13 ms

2.5" Hard Drive	810 MB	1,350MB	2.0GB
Track to track seek	3 ms	3 ms	3 ms
Full Track	25 ms	25 ms	25 ms
Average latency	6.1 ms	6.1 ms	6.1 ms
Rotational speed	4200 rev/m	4200 rev/m	4200 rev/m
Media Transfer rate	38 (inner), 56.0 (Outer) Mbits/sec	38 (inner), 56.0 (Outer) Mbits/sec	38 (inner), 56.0 (Outer) Mbits/sec
Buffer to host	16.6Mbytes/sec	16.6Mbytes/sec	16.6Mbytes/sec
Buffer size	64KB (read and write segmented buffer)	64KB (read and write segmented buffer)	
Spindle start time	3 sec	3 sec	3 sec
Reliability:			
MTBF: Power-on Hours	300,000 hours	300,000 hours	300,000 hours
Unrecoverable errors	1.0E-14 bits transfer	1.0E-14 bits transfer	1.0E-14 bits transfer
Configuration:			
Sector Size	512 Bytes	512 Bytes	512 Bytes
Recording Zones	8	8	
User Cylinders	3,660	3,660	3,660
User sectors/Track at zone 0	135	135	135
Data Heads	4	6	10
Disks	2	3	5

Note: The hard disk drive can be removed by the user for easy upgrades. The hard drive is located on the bottom case and with the removal of one screw the hard drive can be removed.

Center Bay Modules

w Floppy Disk Drive:

Internal 3.5 inch, 1.44-MB flexible disk drive is standard on all models. The flexible disk drive can be easily removed by the user and replaced with an additional battery pack to double battery life or with CD ROM Module. The Floppy Disk Drive Modeul has a built in cable that allows the module to be used externally (through the parallel port) as well. This allows the Floppy Disk Drive and the CD ROM to be used at simultaneously.

Manufacturer: Teac

w CD ROM

Internal 4X CD ROM, IDE (ATAPI standard). Unlike the Floppy Disk Drive Module, the CD ROM Module can not be used externally.

Manufacturer: Toshiba

Specs:

Transfer Rate: 600K sustained (Burst 8.ssMB/s - Mode3)

Buffer: 128K

Access: 200ms

Seek: 170ms

Modes: CDROM (Mode 1&2), Photo CD, CD Plus, CDXA, CD-I, Multisession

w LiIon Battery Module

The large LiIon Battery Module has 150% of the capacity of the standard LiIon battery. It installs in the center bay. This module is approved as a component by UL, CSA, and TUV.

Built-in I/O

w 9-pin, 115,000-b/s RS-232 port, UART 16550

w 25 pin bi-directional ECP, EPP, and external FDD autosense parallel port

w SVGA out (up to 1024 x 768 x 256 colors) with simultaneous viewing VGA out (640 x 480 x 16M colors)

w Fast-IR-IRDA compliant @ 4 Mbps

w Expansion Bus Connector for connecting to the docking station (includes PCI, AT bus and multimedia signals.

w 2 NTSC/PAL ports: 1 RCA, 1 S-Video

w Keyboard/mouse port

w Headphone/stereo-out port

w Microphone port

w Stereo-in port

w MIDI/joystick port

Display/Video

	TFT SVGA Display Active Matrix	TFT SVGA Display Active Matrix	DSTN Display Dual Scan Twisted Nematic
Size	10.4 inches diagonal	12.1 inches diagonal	11.3 inches diagonal
Resolution	800 x 600 x 64K colors @ 60HZ Refresh: 90ms (18 bit)	800 x 600 x 64K colors @ 60HZ (18 bit)	640 x 480, 256 or 64K colors @ 60Hz. Refresh: 160ms (8 bit)
Video bus, display RAM	32-bit PCI bus	32-bit PCI bus	32-bit PCI bus
Memory	1-MB display RAM EDO	1-MB display RAM EDO	1-MB display RAM EDO

w Display Manufacturer: Hitachi

w Video graphics controller chip: Chips and Technologies CT 65548

w External video resolution (both types): Supports VGA/SVGA external monitors with up to 1024 x 768 x 256 colors in noninterlaced mode. Resolution options:

Resolution	Maximum colors	Refresh
640 x 480	16M	60Hz
640 X 480	64K	75HZ
800 x 600	64K	60Hz
800 X 600	256	75Hz
1024 X 768	64K	60Hz
1024 x 768	256	75HZ

Display/Video

w DSTN Displays do not support panning modes for 1024 X 768 external and 800 X 600 internal.

w Auto detection of external monitor without rebooting

Note: Includes option to simultaneously display external video and notebook display.

TFT Display Quality

TFT display manufacturing is a high precision but imperfect technology and manufacturers cannot currently produce large displays that are cosmetically perfect. Most if not all TFT displays will exhibit some level of cosmetic imperfection. These cosmetic imperfections may be visible to the customer under varying display conditions and can appear as bright, dim or dark spots.

This issue is common across all vendors supplying TFT displays in their products and is not specific to the HP OmniBook display.

The HP OmniBook TFT displays meet or exceed all TFT manufacturer's standards for cosmetic quality of TFT displays. HP does not warrant that the displays will be free of cosmetic imperfections.

TFT displays may have a small number of cosmetic imperfections and still conform to the display manufacturers cosmetic quality specifications.

Here are some guidelines to use in determining what action to take on a customer complaint of cosmetic imperfection in their TFT display:

1. The unit should be viewed in the customer's normal operating condition.

This means if the customer uses the unit predominately in DOS, or Windows, or in some other application or combination of applications, that is where the determination shall be made. Self test is not a normal operating condition and is not a sufficient tool to interpret display quality.

2. In the customer's normal operating mode:

a. If 4 or more variant pixels appear clustered in the area approximated by a thumbprint on the display surface, then the display should be considered for replacement.

b. On OmniBook 4000CT models, if more than 30 total pixels anywhere on the display are bad, then the display should be considered for replacement. On OmniBook 600CT and OmniBook 5000CT/5500CT models, if more than 15 total pixels anywhere on the display are bad, then the display should be considered for replacement.

These are the only conditions in this guideline that may call for a replacement due to a defect in material or workmanship based on the HP Limited Warranty Statement.

3. If a display is considered for replacement, it should be clear to the customer that cosmetic variations on the replacement display may also exist, and may require the customer to use a work-around to obscure the cosmetic imperfection.

TFT Display Quality (continued)

4. Customers with cosmetic-based complaints only, that do not conform to the above conditions and tests will not normally be considered for display replacement. It will be left to the judgment of the HP-responsible person who, in working with the customer, to identify work-arounds that are reasonable and appropriate for the individual customer. Customers who must have a more perfect display solution should consider switching to an OmniBook with a DSTN display.

We expect over time that the industry will continue to improve in their ability to produce displays with fewer inherent cosmetic imperfections and will adjust our HP guidelines as the improvements are implemented.

User interface

wKeyboard: 85/86-key touch-type keyboard with embedded numeric keypad and 12 Fn keys. Wrist pad provides comfort for extended keyboard use. External 6-pin mini-DIN interface for external keyboard and/or mouse connection. OmniBook 5500 supports the Y connector to use both the keyboard and mouse. (HP external keyboard (101-key) Part number C3756A)

w Pointing device: IBM Trackpoint III in GBH position.

w Optional pointing devices: Includes 6-pin mini-DIN interface for external PS/2 mouse connection. Also supports serial mouse connection.

Power

w Standard Battery types: Removable 14.4-Vdc rechargeable NiMH and Lithium Ion battery. Both battery types do not require complete discharge before recharging. There is no "memory" effect that reduces battery life.

w Large Battery types: Removable 14.4-Vdc rechargeable NiMH and Lithium Ion battery. Both battery types do not require complete discharge before recharging. There is no "memory" effect that reduces battery life.

w The OmniBook 5500 batteries are not compatible with previous OmniBooks (5000 or 4000).

Battery Life; rundown data (approx.):

Battery Type	Run Mode	Suspend to RAM
Standard LiIon	2 - 3 hrs	10 days

Battery Life; rundown data (approx.):

Battery Type	Run Mode	Suspend to RAM
Large LiIon	3 - 5 hrs	14 days

w Recharge time (Display off): 4hrs (Standard Li-Ion), 5hs (Lrge Li-Ion)

w Recharge time (Display on): 5.3hrs (Standard Li-Ion), 6.7 hrs (Large Li-Ion)

Note: If unit has 1 standard LiIon and 1 large LiIon: 4 hrs +5 hrs = 9 hrs.

Power

w Low battery signals: 2-minute low battery warning. Unit will shut down if battery warning ignored to ensure data retention.

w Instant on: Maintains OmniBook in ready-to-work state for days or weeks on a full charge; when turned on it returns ***instantly*** to previous state. No waiting for restoring from disk. Accomplished by the use of self refreshed DRAM technology. Note: The OmniBook 5500 utilizes the same technology as the OmniBook 5000 and 600 to achieve the instant on feature.

w Smart Battery: The OmniBook 5500 uses "Smart" battery technology. The battery itself contains an ASIC (Application Specific Integrated Circuit) that is able to continuously test and track the status of the battery. The OmniBook BIOS can then receive high-quality information about the battery condition directly from the hardware and not interrupt the CPU. The condition can be checked using two methods that receive information from the BIOS (CONFIGURATION [fn][f2], Windows Control Panel Power).

w Energy S.T.A.R. compliant

w AC Adapter: 100 to 240 Vac adapter (50 to 60 Hz) input; 12 Vdc, 2.5 A output. Same adapter as the OB600 (F1044B). Use only an HP F1044B AC adapter (the type shipped with the OmniBook). Using any other adapter could damage the OmniBook and void the warranty. Always plug it into a grounded outlet.

w Power management options: Advanced; Standard; Off; Custom.

w The OmniBook 5500 includes a "fake" off mode while docked. This enables the user to turn off the OB5500 while docked and not loose any connectivity (such as to a network). Basically, this mode shuts down the display only and maintains all power to ports and the CPU.

wA fully charged NiMH battery in storage will loose 20% of its charge per month in storage.

External battery charger

w Designed for desktop use. Powered by the F1044B adapter

w Charges two additional batteries

w Size: 15.5 x 13.3 x 5.2 cm (estimated), no weight estimate at this date

w HP part number: HP # F1338A

Automobile adapter

HP # F1064 - same as OmniBook 600 and 5000

Standard LiIon battery pack

HP # F1193A

Enhanced LiIon battery pack	HP # F1194A
Extra AC adapter	HP # F1044B
Accessory Slots	w User available PCMCIA Slots: 2 Type II or 1 Type III w Bus: Intel QuickSwap (ExCa) w The PCMCIA slots are fully industry compatible and supports the latest SystemSoft Card Services and Socket Services. The system will support a wide variety of PCMCIA cards. w PCMCIA controller chip manufacturer: Cirrus Logic (CL-PD6729). Note: This is fully compatible with the Intel 365 chip). Cirrus Logic is the original company that developed the PCMCIA controller and is considered the best in the industry.
Audio Systems	w High performance audio: 16-bit stereo sound, Sound Blaster hardware compatible. Supports Native Signal Processing (NSP) and is Plug and Play compatible. w Two stereo speakers with acoustic chambers w I/O: Headphone/stereo-out port; microphone port; Stereo-in port w IRQ default setting for soundblaster is 5. w Audio controller and Manufacturer: CS4232, Crystal w Audio controller characteristics: sampling: 8-48kzh playback rate: 8-48kzh distortion: maximum is 0.02% although you need to consider the type of external speakers using as these can be a factor in the distortion created.
Operating environment	w Temperature: 0 to 35° C (32 to 95°) DSTN display models: 41 to 104 degrees F (5 to 40 degrees C) TFT display models: 50 to 104 degrees F (10 to 40 degrees C) w 90% relative humidity at 104 degrees F (40 degrees C) maximum
Storage environment	w Temperature: -40 to 149 degrees F (-40 to 65 degrees C) w 90% relative humidity at 149 degrees F (65 degrees C) maximum
Environmental Testing	w ESD as per IEC-801-2, EN 55024-2 w Drop testing: 225g, 3ms half sine wave shock: 6 axis, 3 hits per side. w Also tests for altitude, magnetic & radiated susceptibility & interference, shock & vibration. Note: These are the tests that HP designs notebook computers to meet. Due to normal variations in the components of individual machines, some machines will perform better and some won't perform as well. HP does not garantee that every notebook computer will meet these specifications.

BIOS	w Plug and Play BIOS stored in EEPROM
	w User Upgradable via floppy drive
	w A corrupt BIOS that prevents the machine from booting requires a Motherboard replacement. The BIOS can be corrupted by interrupting a BIOS upgrade during the update process.
Software and Operating System	w Microsoft Windows for Workgroups 3.11 or Windows 95
	The HP OmniBook 5000/5500 family comes co-loaded with Windows for Work Groups and Windows 95. The user selects the operating system of choice and the other is auto deleted.
	w MS-DOS 6.2
Supported Operating Systems	wMS DOS version 6.22*
	wMicrosoft Windows for Workgroups 3.11*
	wMicrosoft Windows 95*
	wMicrosoft NT workstation 3.51**
	wOS/2 version 3.0**
	* Supported to the application level. ** Only setup and configuration supported.
Security	w Physical security from Kensington Lock
	w 2 - level password protection (admin and user levels), PC ID (tattooing)

Password Decode

If the user forgets the system password, there is a master password that will unlock the OmniBook. The user calls Technical Support to determine this master password as follows:

1. Support will tell the user the keys to type at the password entry screen ?

2. The OmniBook generates and displays an encoded master password. This is displayed under the normal password entry area. At this point, this is the only password that will unlock the OmniBook unless the user presses [ESC] to remove the encoded master from the password entry screen. Then the user's stored password can be entered.

3. The user reads the encoded master password to Support.

4. Support runs a program that decodes the encoded password, and reads the decoded password (alphanumeric) to the user.

5. The user types in the decoded password.

6. OmniBook decodes the encoded master password it generated and compares it to the decoded password typed in by the user.

7. If the two passwords match, the OmniBook is unlocked. The forgotten password is automatically erased. Support can then guide the user through the process of entering a new password.

8. If the two passwords do not match, the previous sequence must be repeated until the user correctly enters a master password.

The encoded master password is an eight-character alphanumeric sequence that the OmniBook generates at random every time the appropriate keys are pressed in the password entry screen. Because it is generated randomly, a master password can only be used to unlock the OmniBook once. If the user forgets the password at another time, it will require another call to Support. (If the user presses the appropriate keys by mistake, pressing [ESC] will allow entering the stored password.)

Password Decode Policy

The password descramble programs for the HP OmniBook PCs are protected as HP Company Private information. They may not be copied, backed-up, printed or distributed. There are only six official copies of each program.

In addition to protecting the program itself, it's use is also controlled. Hewlett-Packard and authorized support providers must ensure with written evidence that the OmniBook that is being "descrambled" is actually in the hands of the unit's actual and current owner. This requires a sales receipt showing the unit serial number and owner's name, or a written statement from the owner attesting that they are the owner of the unit. The statement can be a FAX copy of the document. The fact that the unit is in the hands of an HP representative on the behalf of the customer is not evidence of ownership. In addition, HP will not descramble a unit for any non-owner, even if it involves law enforcement agencies. If you receive such a request, you should notify management and HP Corporate Legal immediately. (These requests may require a court order prior to our participation.)

Further, you must log the name, serial number and date of the running of the descramble program, and file the written backup with the log. The log and backup is subject to standard record's retention process and review.

The final issue relating to descramble of passwords is that HP cannot provide information to users that would assist them in improperly descrambling a password and opening a unit.

Notebook Hardware Structure

The following guidelines apply to all subassembly level repairs

- Properly ground yourself and your work area to prevent damage from static discharge
- Always replace any conductive sponge material or thermal tape that becomes damaged during repairs.
- Use a #0 Phillips screwdriver to remove all screws

Field Replaceable Assemblies

Removing LCD Assy and Icon Assy (Hewlett-Packard Authorized Service Providers Only)

The LCD Assy and/or Icon Assy on the OmniBook 5500CS and CT are removed the same way as on the OmniBook 5000. Turn the unit over, raise the feet, and withdraw the two Phillips screws (screw - display) from under the feet in the bottom back corners of the unit (see diagram below which shows the OmniBook 5000).

Turn the unit right side up and dislodge the Icon Assy by placing the thumbs on each edge of the Assy and pushing lightly (see diagram below which also shows the OmniBook 5000). The front edge of the Icon Assy will lift up slightly.

Lift the LCD Assy straight up about 1 inch. The Icon Assy will lift up with the display. Move the Icon Assy out of the way. The cable from the Icon Assy to the PCA PT-ICON does not need to be removed if only the LCD Assy is being removed. Otherwise, slide the connector sleeve up to remove the Icon Assy cable.

If only the Icon Assy is to be removed, the LCD Assy may be lowered back into position.

To remove the LCD Assy, remove the two cables attaching the LCD Assy to the PCA PT-ICON . Lastly, remove the two screws attaching the grounding straps to the PCA PT-ICON. The LCD Assy can now be removed the rest of the way.

Notice that the display cabling assembly on the OmniBook 5500 is different than on the OmniBook 5000. The LCD Assy is not transferable between the two models.

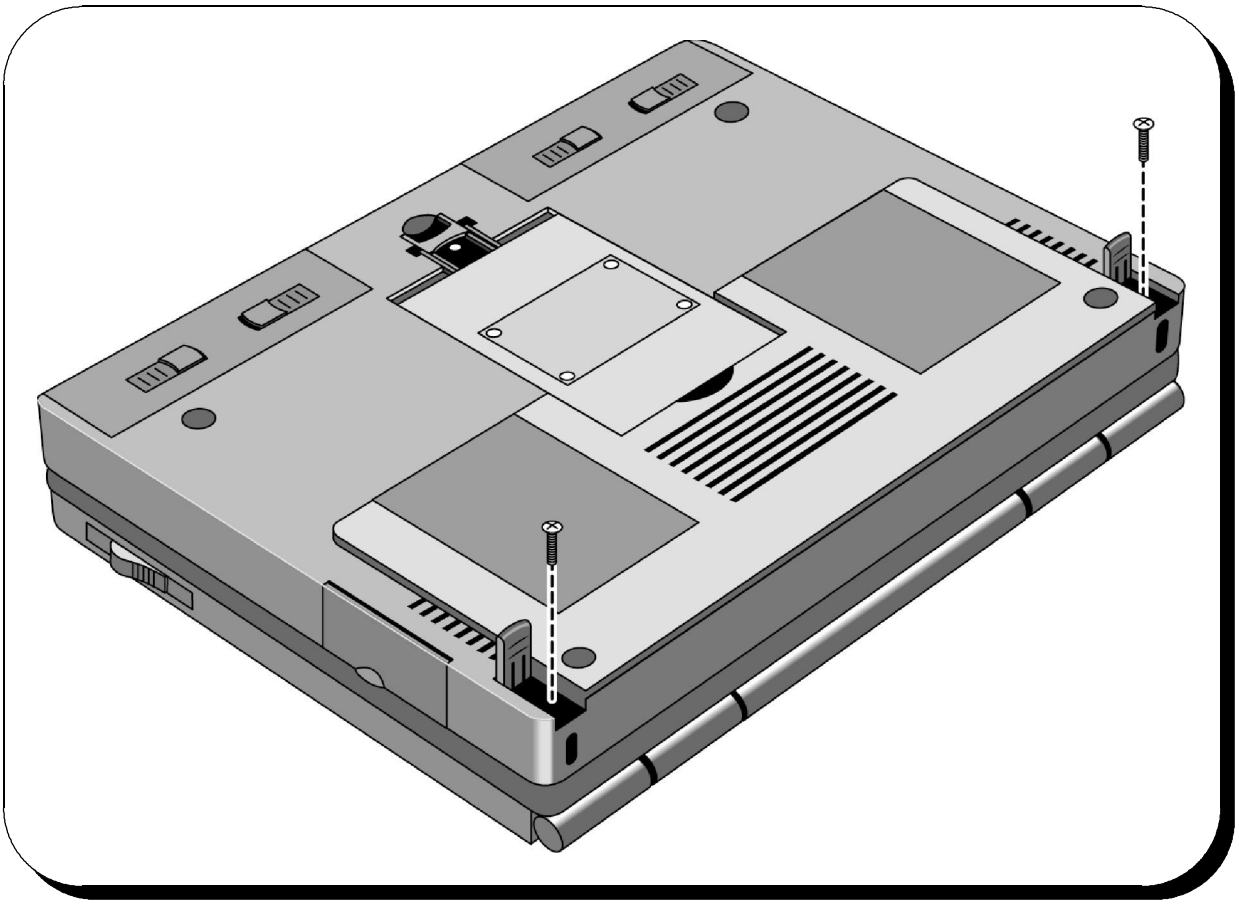
To reinstall the LCD Assy or Icon Assy, just reverse the above procedure. When reinstalling the LCD Assy, make sure that the two posts on either side of the Assy line up parallel with their slots in the top case. If they are not parallel, the post will get caught inside the top case before the display is seated completely. If this happens, remove the display and line the posts up properly.

Replacing Disp Panel Plastic, Disp Cover Plastic, Hook, and Hook Button

Remove four rubber 'feet' from the inside of the LCD Assy. Remove four Phillips screws from under the rubber 'feet". Remove the contrast and brightness control knobs (TFT displays only have on knob). Firmly pull panel apart as shown in the diagram below. Display panel plastic can now be replaced.

To replace hook, first remove spring. Then remove outer button by compressing tabs on inside of hook and prying button out. Hook can now be removed.

To replace Disp Cover plastic, remove LCD Panel, both LCD PCBs, clutch assemblies, and hooks. Replace these items in the new Disp Cover.



Removal and replacement of Rubber Feet, Plastic Feet, HDD Door, Memory Cover Door, and RAM Expansion Module.

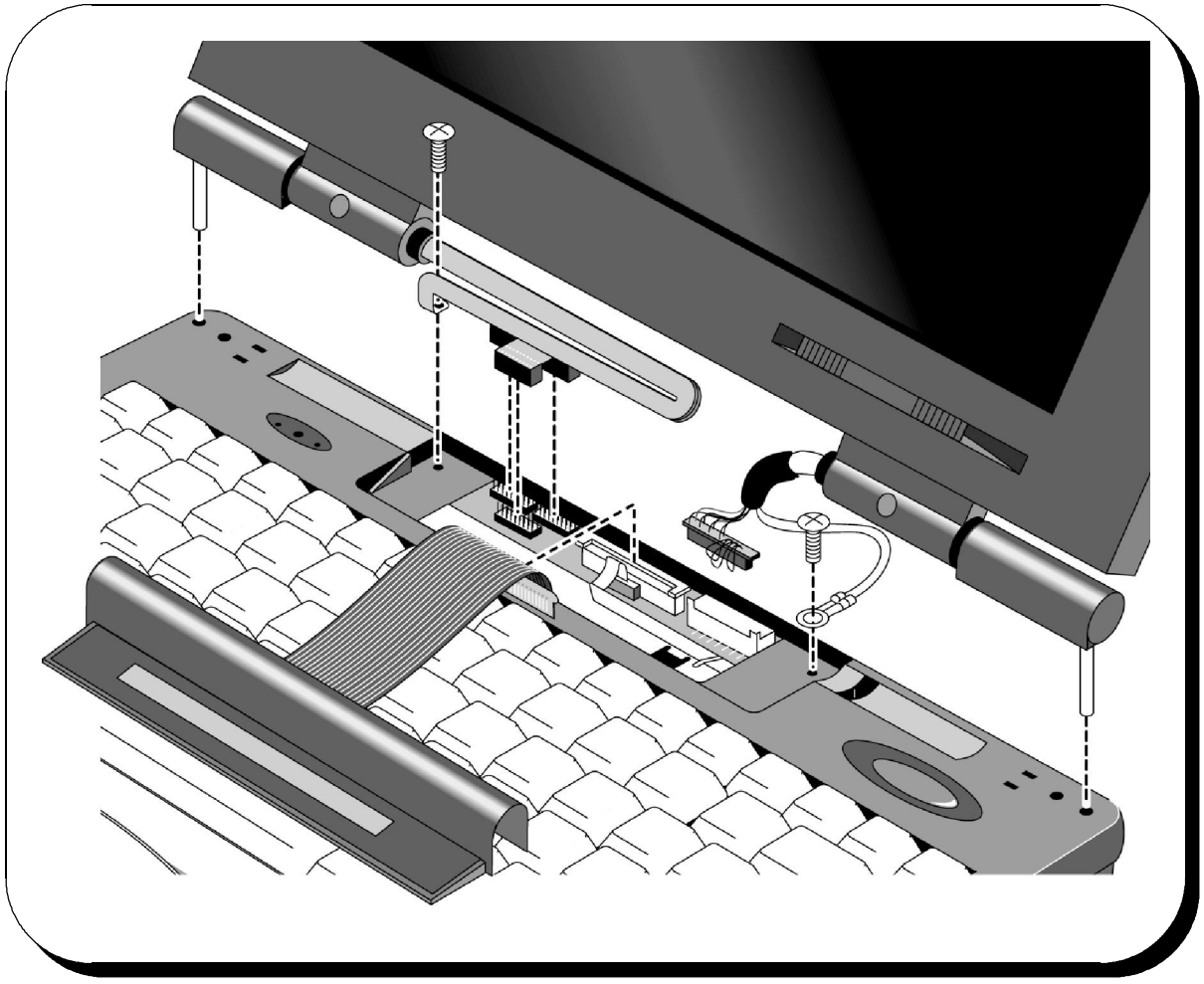
Rubber feet are secured to the Lower Chassis Case with adhesive. To remove just pry off. To replace, use attached adhesive.

Plastic feet are removed by compressing the two plastic tabs in the hinge area and pulling the tab out. Reverse the procedure to replace.

The HDD security cover is secured by the one black Phillips Screw - HDD Door. Remove this screw to remove the door. This door must be removed to remove the HDD Drive.

The Memory Cover Door can be removed by pulling up on the Door with a fingernail placed in the recess on the Lower Chassis Case.

Ram Expansion Modules are removed by pulling on the tabs next to the module. RAM Expansion Modules are end user replaceable.

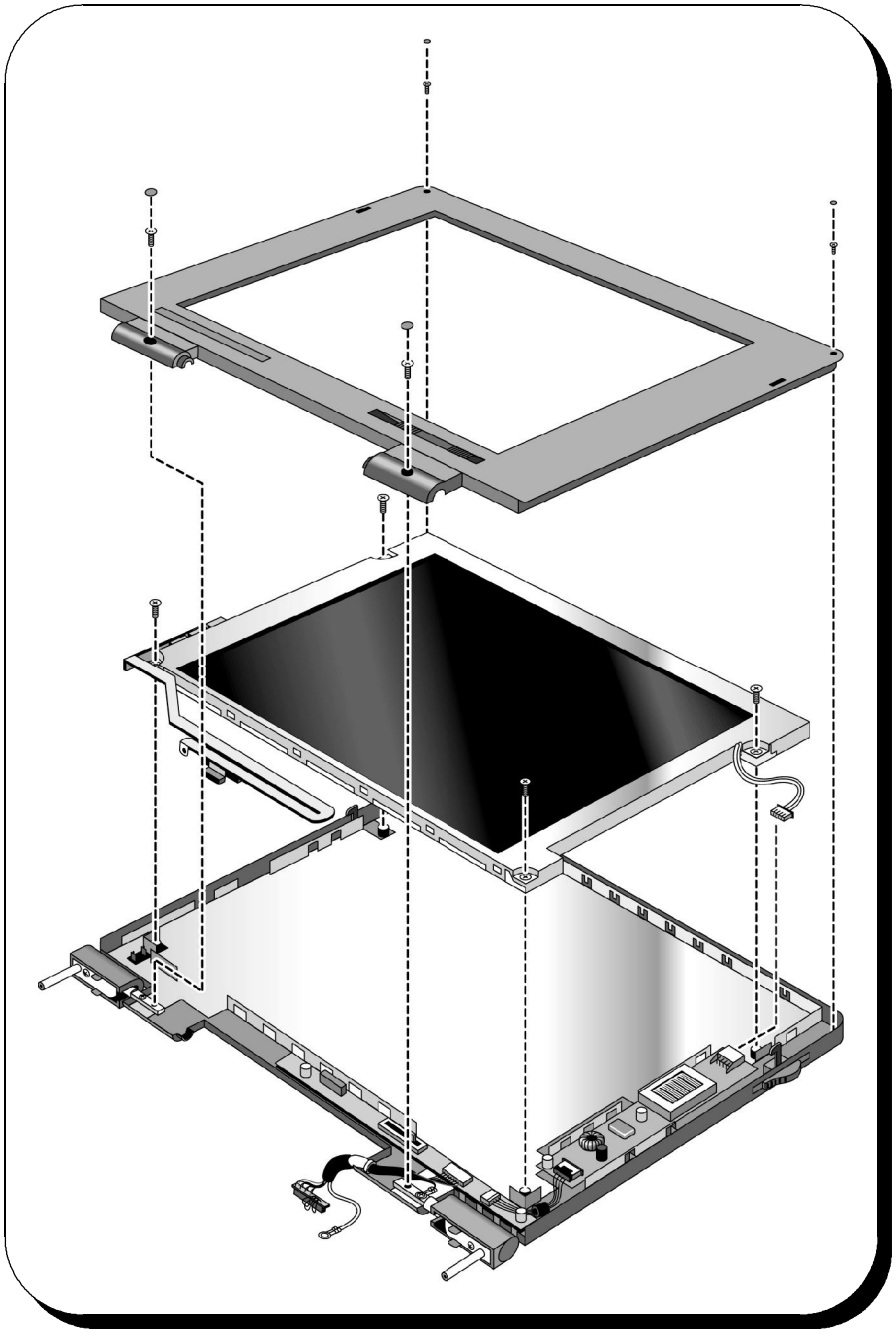


Removal of HDD Drive, FDD Module, CD-ROM Assy, Enhanced Li-Ion Battery, Standard Li-Ion Battery, Printer Port Door, Expansion Door, and I/O door

To remove HDD Drive, first remove the HDD Door (see instructions on previous page). Once HDD Door is removed, HDD Drive can be withdrawn from the front of the machine. The HDD Drive is user replaceable.

To remove the FDD Module, CD-ROM Assy or the Enhanced Li-Ion Battery, slide the knurled level on the front of the module to be removed to the right (when looking at the unit from the front). Pull straight out on the level that is released. The FDD Module, CD-ROM Assy and the Enhanced Li-Ion Battery are user replaceable.

To remove the Printer Port Door, Expansion Door, or I/O Door, bow the door in the middle until the hinges on each edge clear the recess in the Lower Chassis Assembly. Reverse the procedure to install the doors.

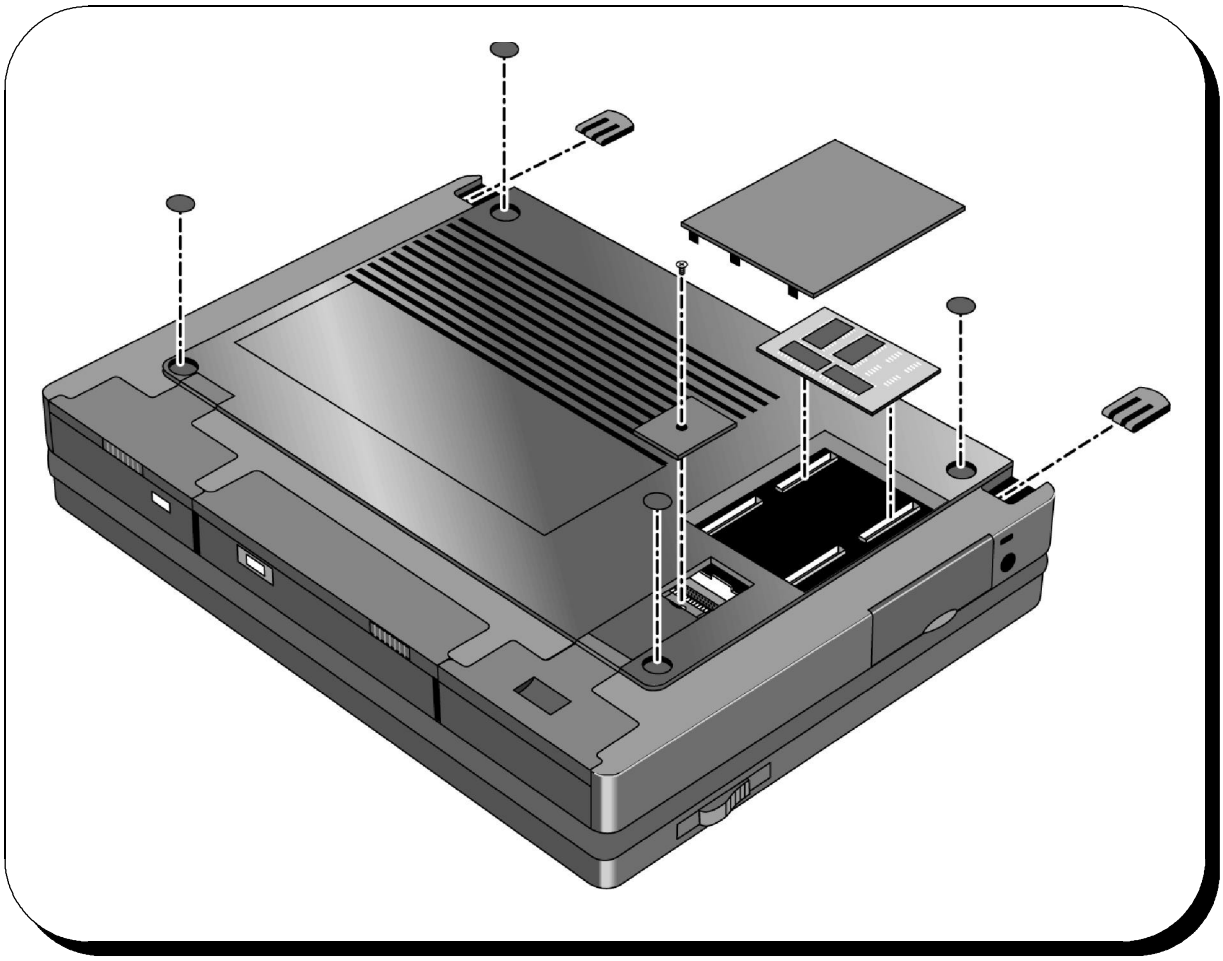


Removal of Palmrest Assy and Sub Battery Set (4.8V)

To remove the Palmrest Assy, first follow the instructions above to remove the HDD Drive, Center Bay Module (FDD Module, CD-ROM Assy, or Enhanced Li-Ion Battery) and the Standard Li-Ion Battery. From the bottom of the unit, remove the four screws (Screw CPU M2.6 X 6L). Turn unit right side up and place a thin flat instrument under the edge of the Palmrest Assy and pry up. The Palmrest Assy will snap up.

Lay the Palmrest Assy upside down on the keyboard. Slip the connector sleeves forward on the ribbon cable connectors on the underside of the Palmrest and remove the ribbon cable. To remove the Sub Battery Set, remove the tape that holds the wires to the Upper Chassis case. Next, remove the Sub Battery Set connector from the Palmrest Assy.

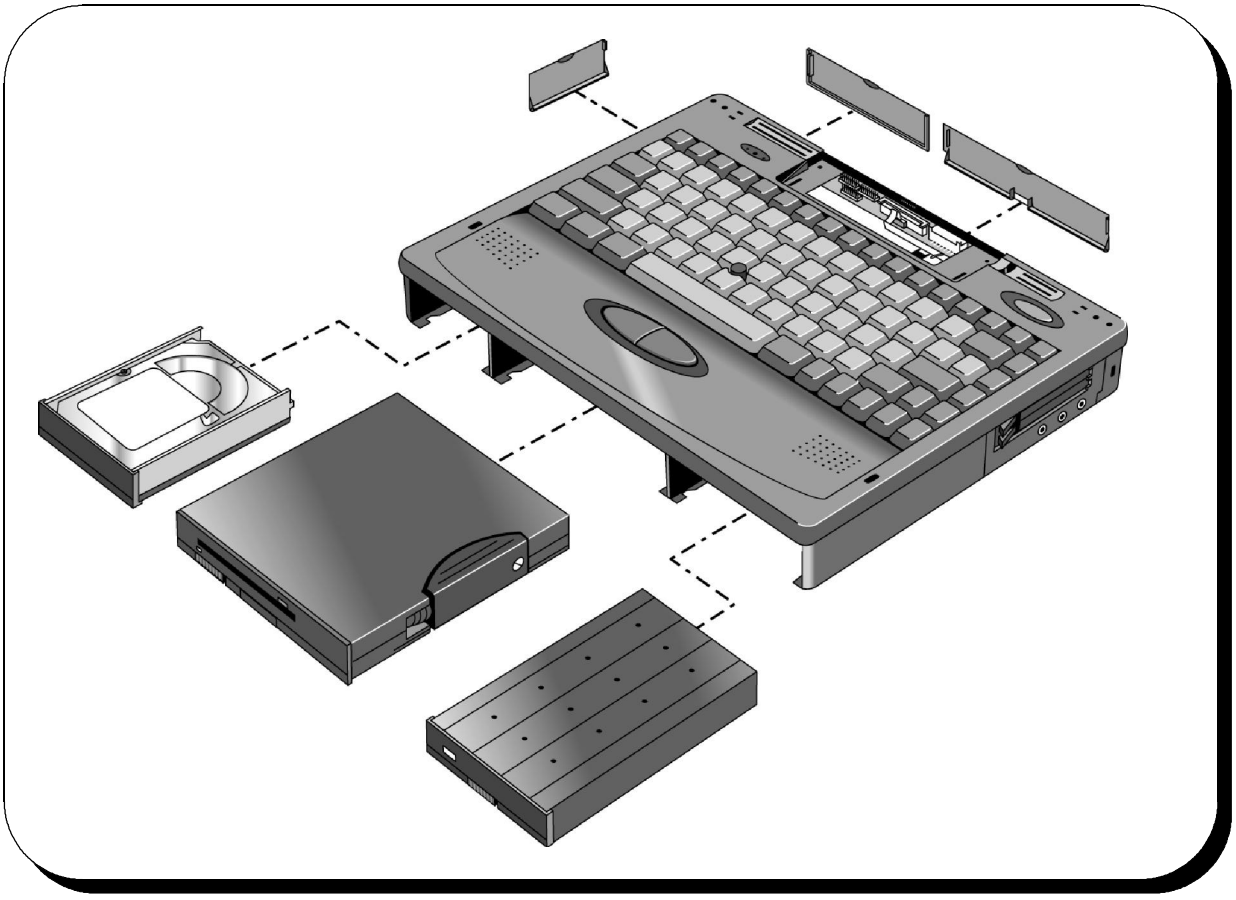
Reverse the procedure to reassemble.



Removal of Keyboard and Power Supply Board (PCA PT-DC)

To remove the Keyboard and PCA PT-DC, first follow the instructions above to remove the HDD Drive, Center Bay Module (FDD Module, CD-ROM Assy, or Enhanced Li-Ion Battery), Standard Li-Ion Battery, and the Palmrest Assy. Remove the four screws (Screw - Keyboard) from the front edge of the keyboard. The keyboard then lifts up and rotates backward around the two ribbon cables that connect it to the PCA PT-DC. Remove the PCA PT-DC by pulling up on the tabs on either side of the PCA PT-DC. Separate the Keyboard and the PCA PT-DC by sliding the sleeves forward on the two ribbon cable connectors on the PCA PT-DC and withdrawing the cables.

Reverse the procedure reassemble.

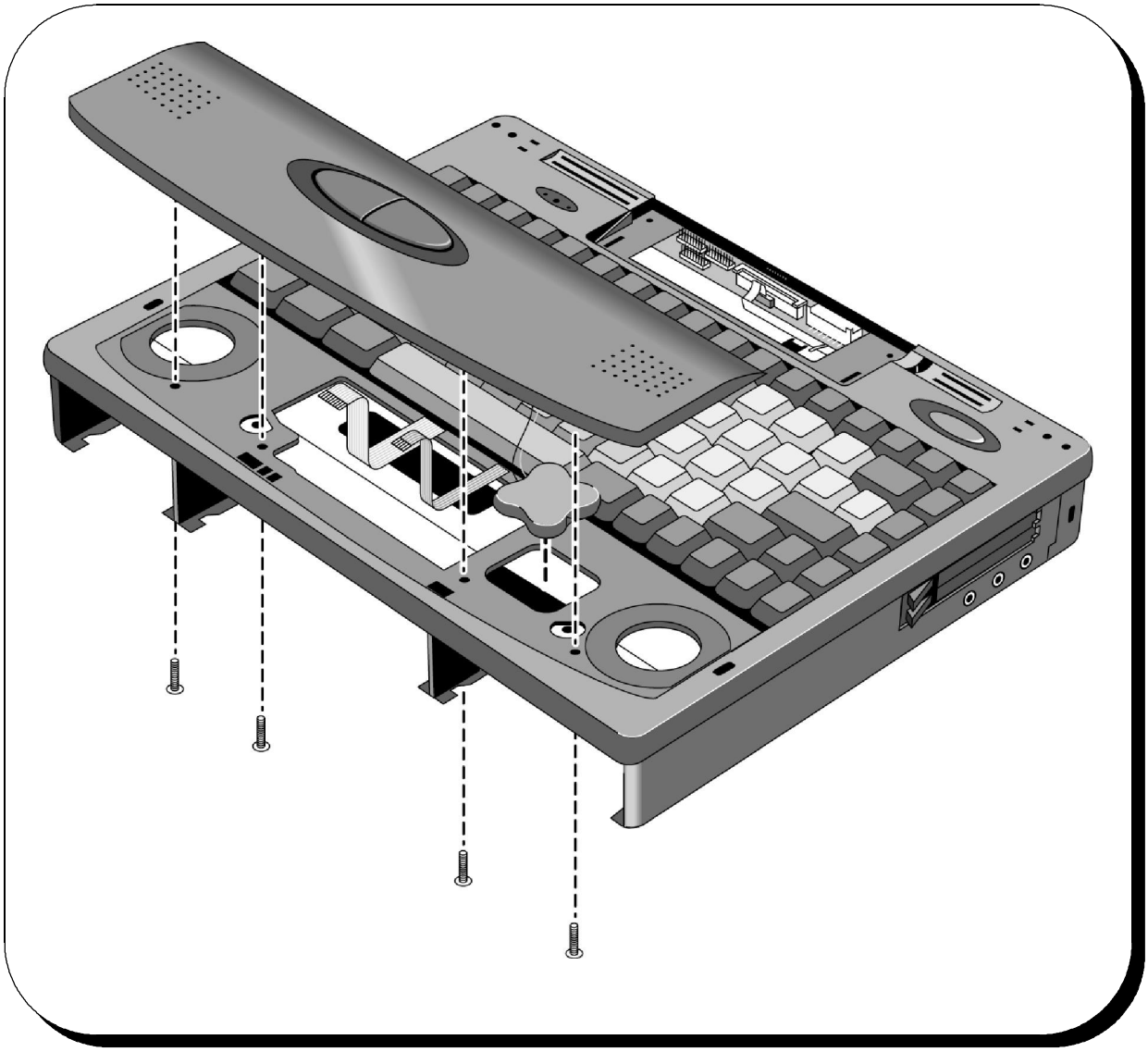


Removal of Upper Chassis Case and Icon PCA (PCA PT-ICON)

To remove the Upper Chassis Case and PCA PT-ICON, first follow the instructions above to remove the HDD Drive, Center Bay Module (FDD Module, CD-ROM Assy, or Enhanced Li-Ion Battery), Standard Li-Ion Battery, Palmrest Assy, Keyboard and PCA PT-DC. Remove the one screw (Screw - CPU M2 X 4L) on the left side of the Upper Chassis Case. Upper Chassis Case can then be snapped off. If necessary the suspend/resume button assembly (PA PT-TRP), which comes with the Upper Chassis Case repair part, can be removed by removing the two screws.

Remove the one screw (Screw - CPU M2 X 4L) holding the PCA PT-ICON down. Pull straight up on the PCA PT-ICON to remove it.

Reverse the procedure to reassemble. Make sure microphone fits in the recess in the Upper Chassis Case on reassembly.

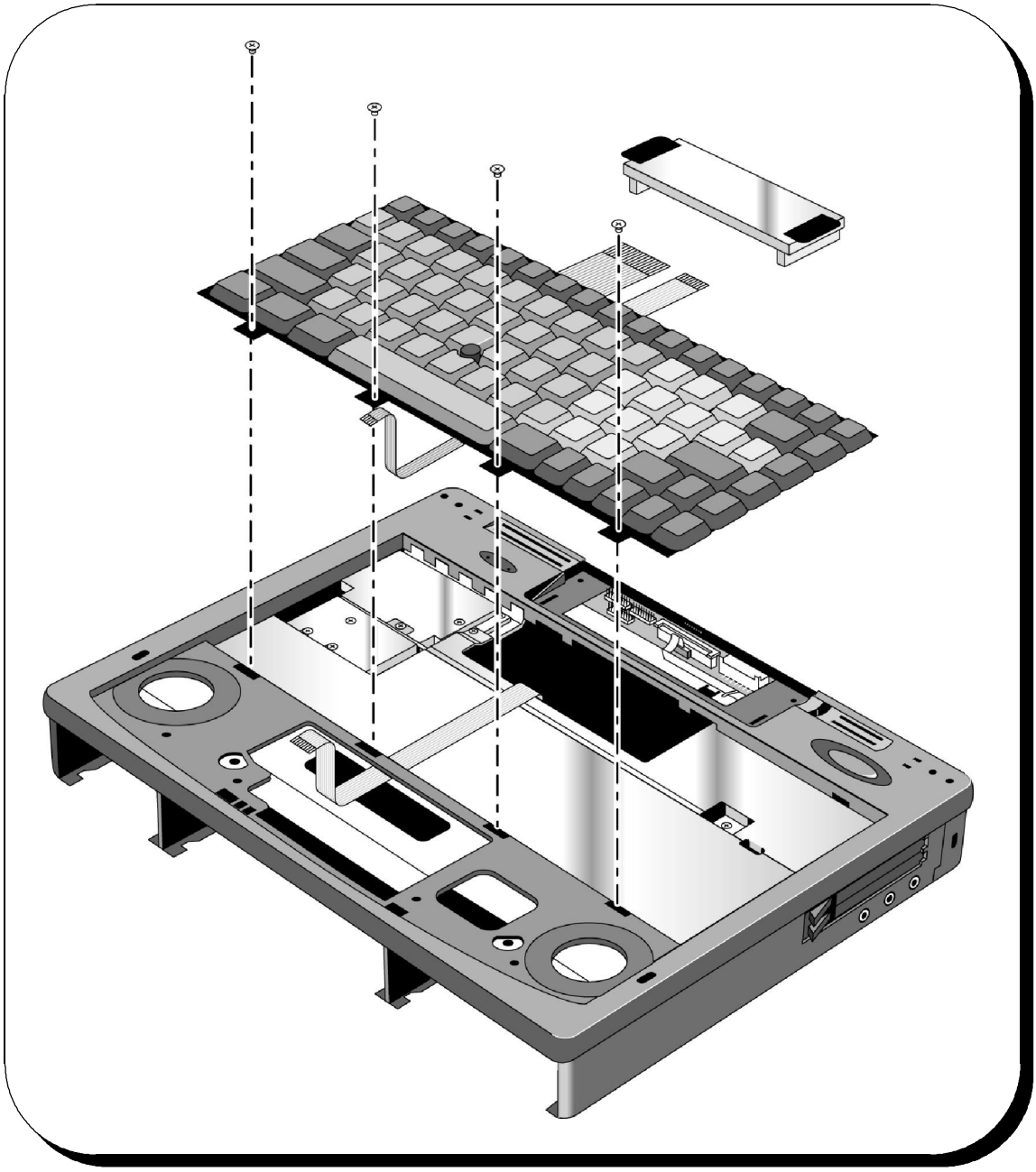


Removal of the Heat Pipe Bracket, Heat Pipe, Heat Pipe Spreader, CPU Module, and Heat Sink

To remove the Heat Pipe Bracket, Heat Pipe, Heat Pipe Spreader, CPU Module, and Heat Sink, first follow the instructions above to remove the HDD Drive, Center Bay Module (FDD Module, CD-ROM Assy, or Enhanced Li-Ion Battery), Standard Li-Ion Battery, Palmrest Assy, Keyboard, PCA PT-DC, Upper Chassis Case, and PCA PT-ICON. Remove the one screw (Screw - CPU M2 X 4L) from the Heat Pipe Bracket and remove the two screws (Screw - CPU M2 X 4L) from the Heat Pipe Spreader. Now the Heat Pipe Bracket, Heat Pipe, and Heat Pipe Spreader can all be removed.

Remove the four screws (Screw - CPU M2 X 4L) from the corners of the CPU Module. The three screws in the center of the module should not be removed. Lift straight up on the CPU Module to remove.

To remove the Heat Sink, remove the two screws (Screw ISOT M2.6 X 4L) in the Heat Sink.



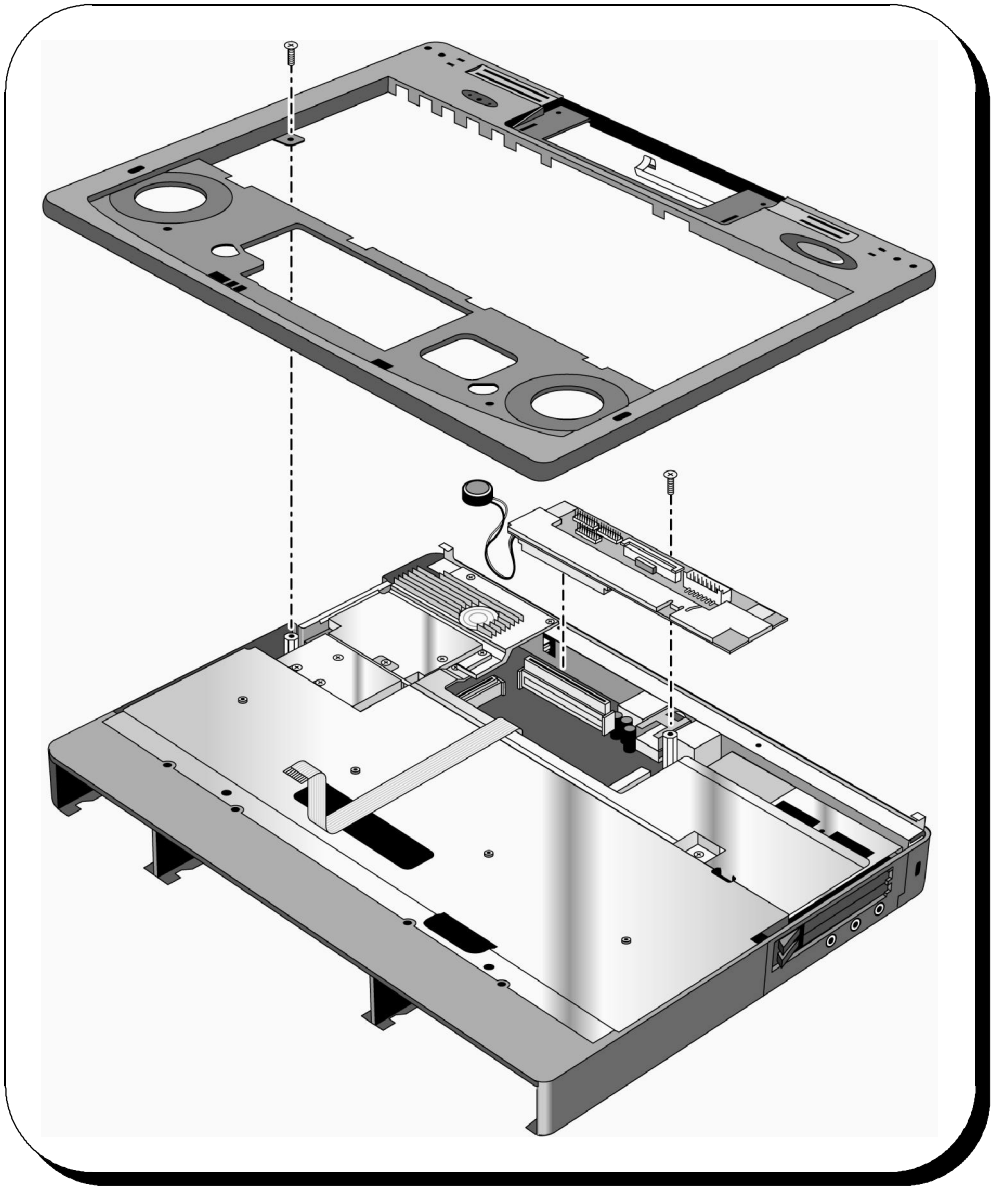
Reverse the above procedure to reassemble.

Removal of KBD Shielding Plate

To remove the KBD Shielding Plate, first follow the instructions above to remove the HDD Drive, Center Bay Module (FDD Module, CD-ROM Assy, or Enhanced Li-Ion Battery), Standard Li-Ion Battery, Palmrest Assy, Keyboard, PCA PT-DC, Upper Chassis Case, PCA PT-ICON Heat Pipe Bracket, Heat Pipe, Heat Pipe Spreader, CPU Module, and Heat Sink.

Remove the five screws (Screw ISOT M2 X 6L) that hold the KBD Shielding Plate down.

Reverse the procedure to replace KBD Shielding Plate.



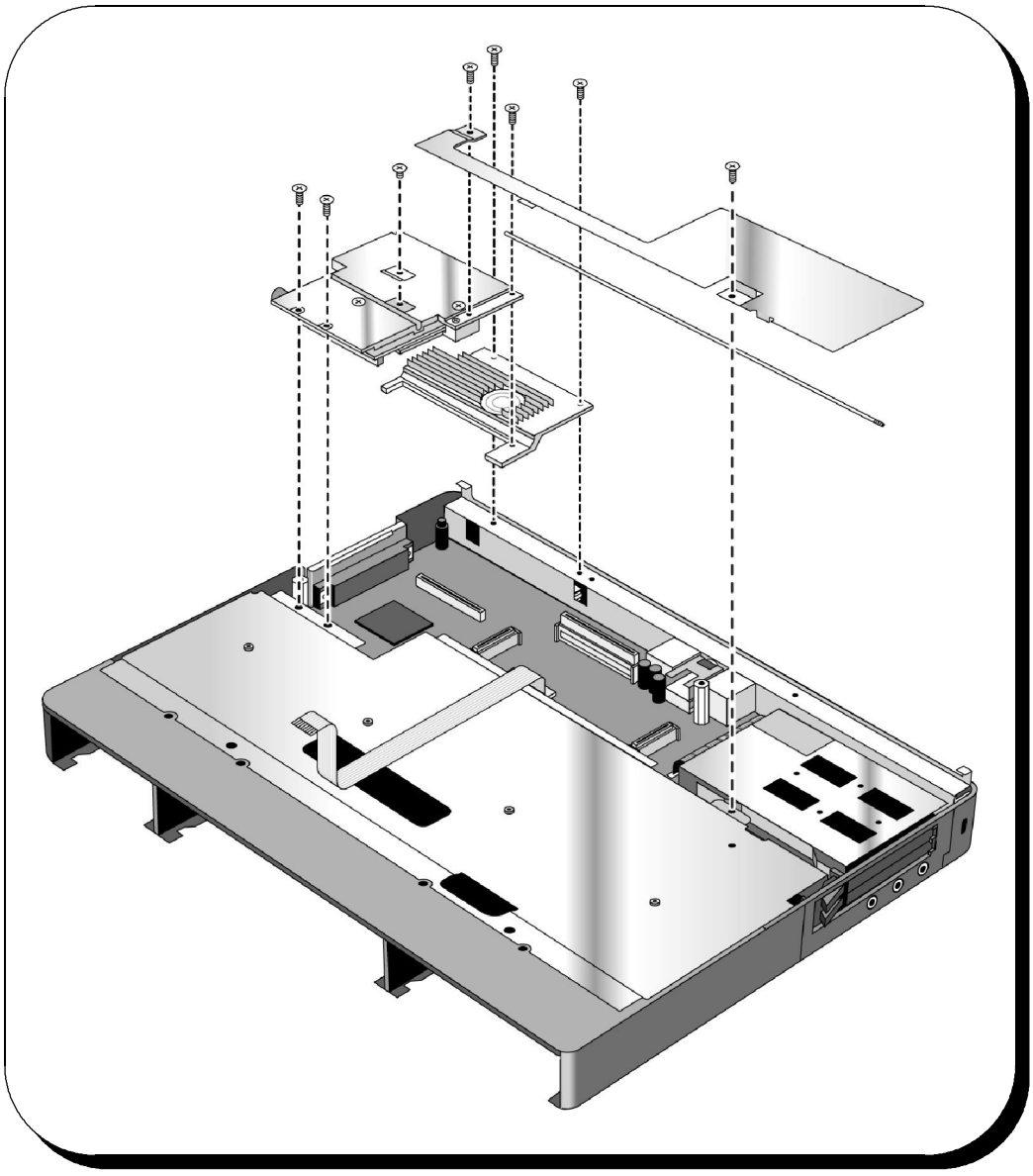
Removal of Motherboard (PCA PT-586 with I/O Bracket), HDD PCB Bracket, HDD-FPC Flex, FFC Cable T/B to M/B 10 Pin, Bezel, IR Lens, and PCMCIA buttons.

The PCMCIA buttons can be removed at any stage of the disassembly process. They must, however, be removed before removing the motherboard.

To remove the Motherboard (PCA PT-586 with I/O Bracket), HDD PCB Bracket, HDD-FPC Flex, FFC Cable T/B to M/B 10 Pin, Bezel, IR Lens, first follow the instructions above to remove the HDD Drive, Center Bay Module (FDD Module, CD-ROM Assy, or Enhanced Li-Ion Battery), Standard Li-Ion Battery, Palmrest Assy, Keyboard, PCA PT-DC, Upper Chassis Case, PCA PT-ICON Heat Pipe Bracket, Heat Pipe, Heat Pipe Spreader, CPU Module, Heat Sink and KBD Shielding Plate.

The HDD PCB Bracket, the HDD-FPC Flex, and the FFC Cable T/B to M/B 10 Pin can all be removed without removing the PCA PT-586. When removing the HDD-FPC Flex be sure to pull straight up on the connector, sideways pressure can damage or break the connector pins requiring a full motherboard replacement..

To Remove the Motherboard (PCA PT-586 with I/O Bracket), remove the three screws (two are ISOT M2 X 6L and one is an ISOT M2 X 4L) that hold the PCA PT-586 in place. Remove the two standoffs (notice that one is 11.75mm long and the other is 15mm long). Remove the Dock Grounding Spring Plate. Remove the two PCMCIA buttons. Make sure that you have removed all RAM expansion modules. Then lift the PCA straight up. The I/O Bracket comes as part of the PCA PT-586. If only the I/O Bracket is damaged, it can be ordered separately and replaced by removing the 4 standoffs and two screws from the back of the bracket.

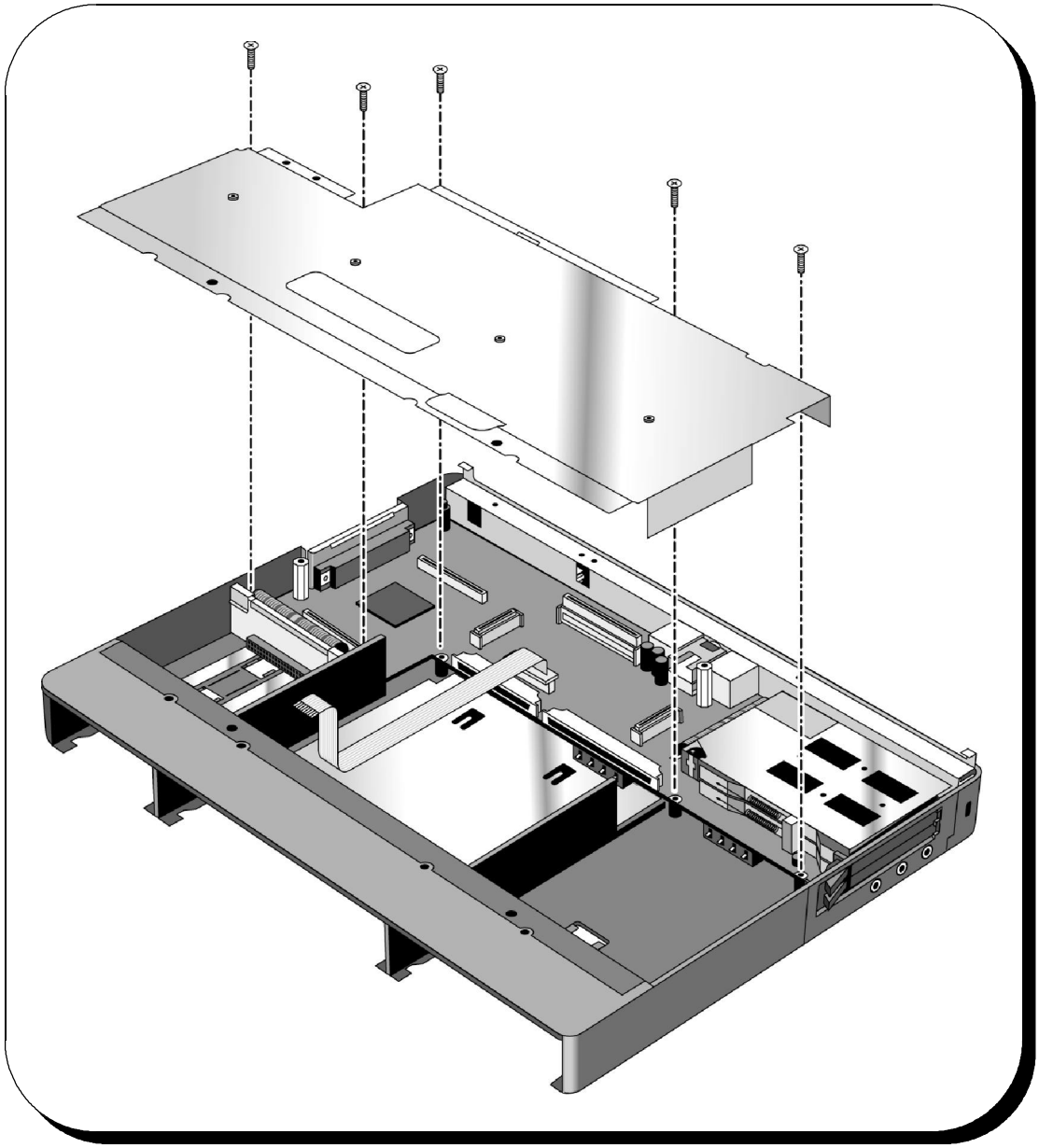


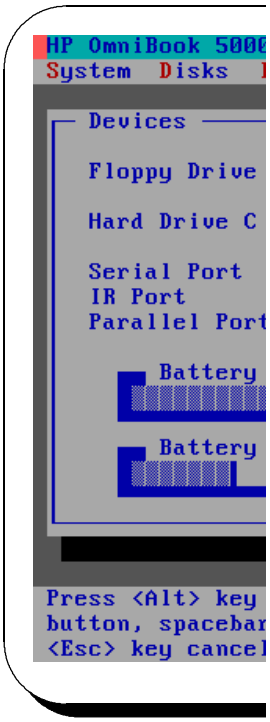
Configuration and Setup

Main Configuration Screen

Pressing [fn][f2] invokes the BIOS setup and configuration utility. The screens shown in this section of the familiarization guide are from the OmniBook 5000. The OmniBook 5500 is the same except in the few cases noted in the text.

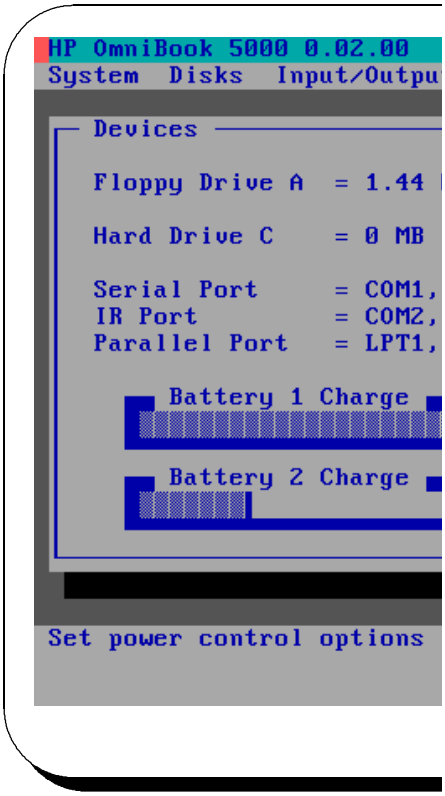
Users can check system configuration and change settings using [f] keys from this screen. This is the most accurate place to check battery and system status. Pressing [f3] from this screen exits back to the current application. The setup/configuration utility is operating system independent. The main screen also displays the BIOS revision in the upper bar.

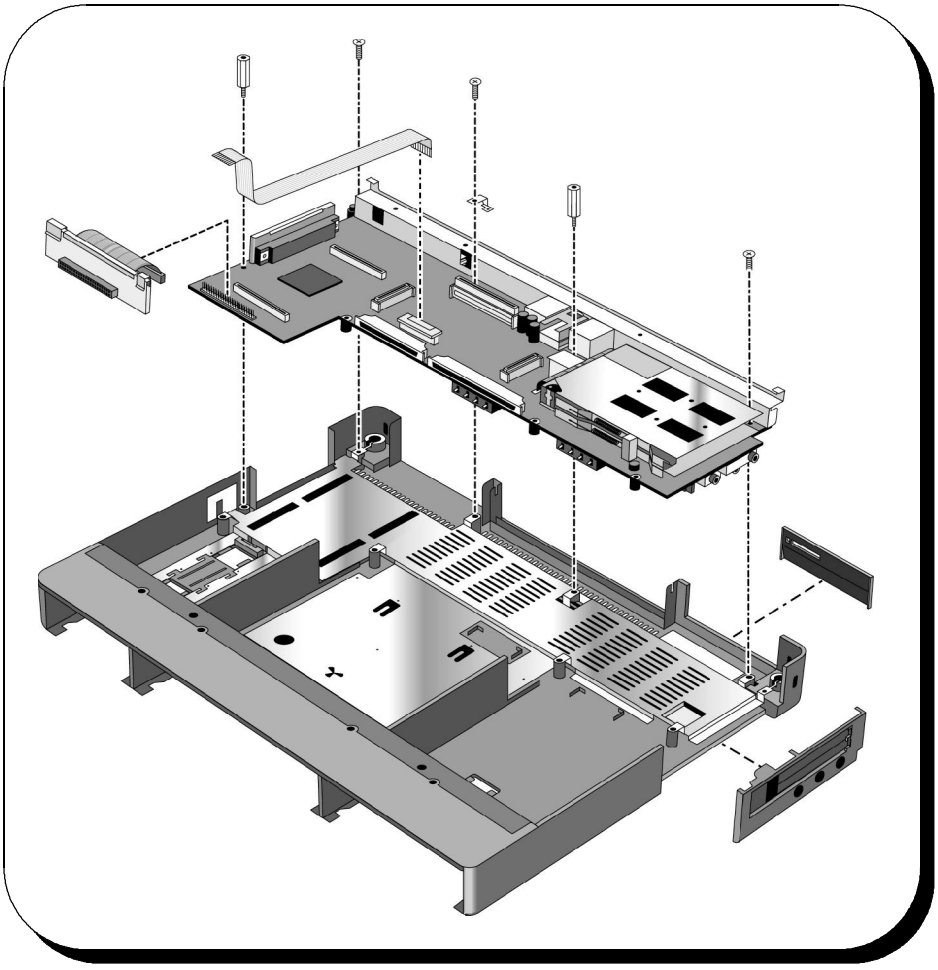




Power Screen

The power screen contains the current power level of the main and auxiliary battery. The auxiliary battery charge status does not show up if no auxiliary battery is installed. Power conservation settings consists of the options shown which allow customer selection of "Turn OFF" (instant off), "Auto Save-to-disk", "HDD power-down", and "CPU power-down".





Power Configuration

To implement the power management capabilities, the following settings are set by the user from the power setup screen.

Setting:	Parameters:	Default:	Comments:
Power Saving	Off/On	On	Enables power saving techniques.
Turn OFF	Disable/Time (1 - 30 minutes or never)	3 minutes	How long the system will stay in Run with (no activity). If disabled it will stay in Run.
Auto Save-to-disk	Disable/Time (6 hours to 7 days or never)	1 day	How long the system will be in off before the entire state of the computer the suspend state. If disabled it will stay in the suspend state.
HDD power-down	Disable/Time (1-30 minutes or never)	3 minutes	HDD will turn off, system has ability to run. HDD will spin up when access required.
CPU power-down	512ms-8seconds	2 sec	CPU clock rate will be reduce if the system has been idle for the selected delay. The clock rate will be restored when system activity is detected.

System Configuration

The system screen contains the processor and memory information for the user to glance at. It also allows the user to set the date and time. The real time clock is not changed until the user exits the setup program. The user can also enable or disable the processor cache.

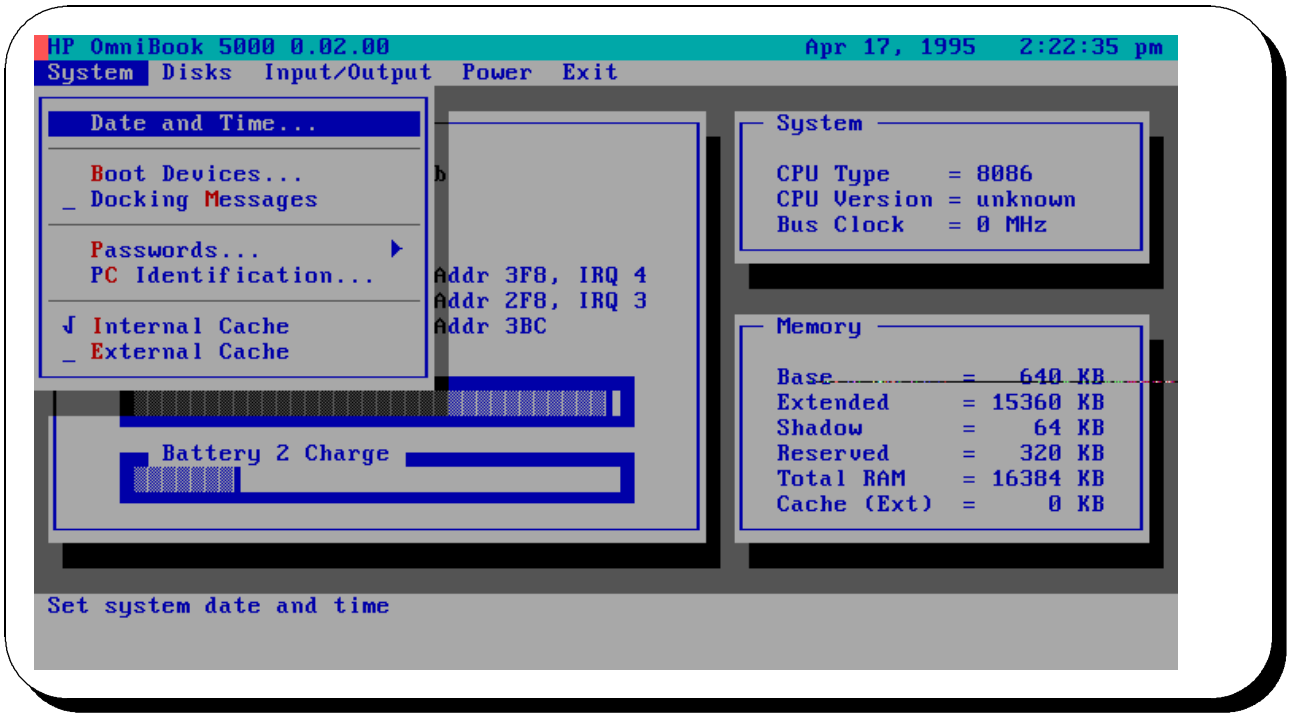
When the user decides to enable a password, a pop up window requests the old password, new password and confirmation of the new password. Hard drives or mass storage are not affected by the password--only the turn-on condition.

Input/Output Configuration

Setting:	Parameters:	Default:	Comments:
COM Ports	Serial Port (None, COM1 - COM4) and I/R Port (None, COM1-COM4)	Serial Port: COM1, Addr 3F8, IRQ 4 I/R Port: COM2, Addr 2F8, IRQ 3	
LPT Port	None/LPT1, Addr 378/ LPT2, Addr 278/ LPT3, Addr3BC	LPT1, Addr 378	
LPT Type	Bi-directional (PS-2)/Standard AT (Centronics)	Bi-directional	
Keyboard Setup	Key Delay (1/4 - 1sec) and Key Repeat Rate (2cps - 30csp)	Key Delay 1/2 sec, Key Repeat Rate 10CPS	
External Devices	VGA Display Device, Television type	VGA Display Device - external VGA if attached, LCD off. Television type: NTSC on option ABA units.	
Audio Ports	Audio volume, Beeper volume	Audio volume: ? Beeper Volume: 3	

Disk Configuration

Setting:	Parameters:	Default:	Comments:
Floppy Disk Drive Diskette A	None, 1.44MB, 2.88MB	1.44MB	
Hard Disk Drive	Disk Type: None, Standard, Custom, Auto-ID	Auto-ID	Also reports disk drive data (# cylinders, # heads, sectors/tracks, landing zone, write precomp)



Troubleshooting and Repair

Known Hardware Issues

w The OmniBook 5500 is the first OmniBook to incorporate drive lock. Drive lock locks the IDE interface on the hard disk drive so that the drive can not be removed from one OmniBook and read in another OmniBook. Both the IBM and Toshiba Hard Disk Drives that ship with the OmniBook 5500 incorporate this feature.

Once a user sets the User Password in the SCU, the OmniBook automatically transfers that password to the hard disk drive in the unit. If the hard disk drive is put in another unit, the password of the new OmniBook must be changed to match the password set on the drive in order to access the drive.

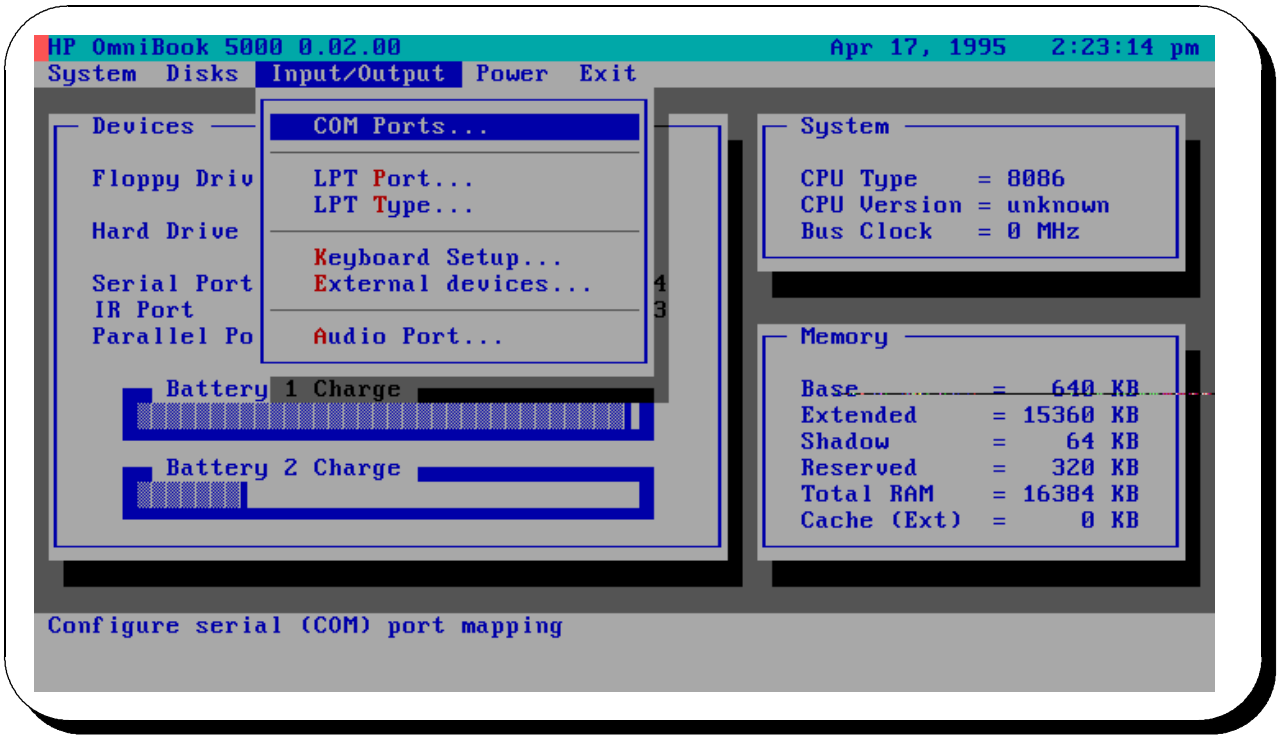
If the User Password does not match the drive lock password, a message will be displayed warning that the drive could not be unlocked because of an incorrect password. :

A drive failure will not display the drive lock error message.

If the unit still functions, insure that the user removes the user password before returning the product for repair.

OmniBook Self-Test

w The complete self-test procedure is documented in the OmniBook 5500 Operating Guide.



w A note about interpreting self-test results.

Self-test alone should not be used to diagnose a hardware problem. If the self-test results are absolutely clear and repeatable, confirm the results with at least two other non-self-test failure symptoms.

w The OmniBook 5500 BIOS includes a POST facility that tests a number of hardware and firmware items in the unit at each cold-start (BOOT or RESET).

First POST: BEEP CODES

These multiple beep codes indicate a failure in a simple test of:

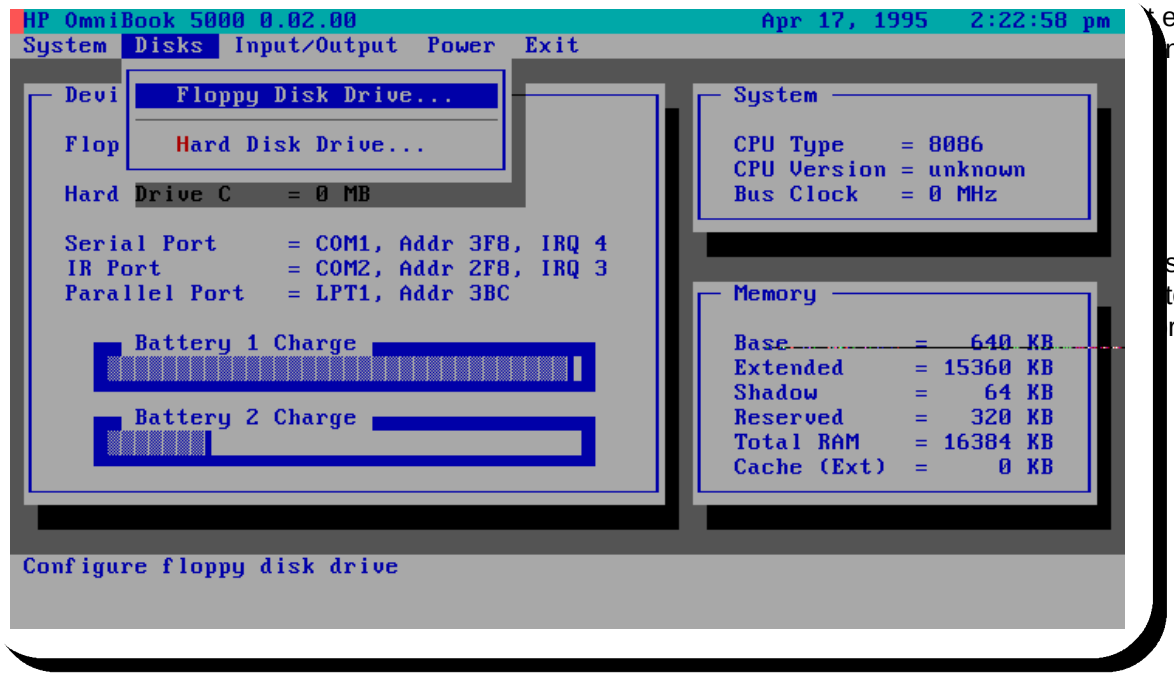
w a portion of base memory

w Flash BIOS checksum

w a portion of conventional memory

w a portion of extended memory

w If the unit fails to boot:



Beep Code	Description
S-S-S-P-S-S-L-P	The DMA page registers are faulty.
S-S-S-P-S-L-S-P	The refresh circuitry is faulty
S-S-S-P-S-L-L-P	The ROM checksum is incorrect
S-S-S-P-L-S-S-P	The CMOS RAM test failed
S-S-S-P-L-S-L-P	The DMA controller is faulty
S-S-S-P-L-L-S-P	The interrupt controller failed
S-S-S-P-L-L-L-P	The 8042 keyboard controller failed
S-S-L-P-S-S-S-P	No video adapter was found
S-S-L-P-S-S-L-P	No RAM installed. No message is dispalyed.

Last POST: DISPLAY CODES

wThere are a number of POST tests that are performed after the BEEP Code tests. Failure of one or more of these tests will result in a displayed failure code (i.e., 03044). It is extremely important not to interpret a failure code immediately as a hardware failure until:

all accessories are removed, including memory cards external floppy, port expander, modems, PCMCIA cards, LAN cards, printers, VGA-out cables, external pointing devices, clean AC power is provided (no "chained" battery chargers or auto adapters), and press reset.

If the unit still fails to boot, it requires service.

NOTE: make sure the display is adjusted to be visible.

PhoenixBIOS POST Messages (Power On Self Test

Within POST, there are three kinds of messages:

Error messages: These messages appear when there is a failure in hardware, software, or firmware.

Informational messages: These messages provide information to the user but require no action.

Beep codes: This kind of warning sounds when POST errors occur and the screen is not available.

Because the OmniBook cannot be repaired by a service center below the FRU level, these messages will provided limited troubleshooting or repair information. However, the support specialist and service technician will be able to identify trends in repairs from these codes.

Message	Possible Cause
CLOCK NOT TICKING CORRECTLY	The real time clock is not ticking.
COLOR/MONO SWITCH INCORRECT	The COLOR/MONO switch on the system board is incorrect for the installed hardware.
CMOS CHECKSUM INVALID - RUN SCU	CMOS RAM information has been corrupted and needs to be reinitialized via the System Configuration Utility.
CMOS FAILURE - RUN SCU	CMOS RAM has lost power and needs to be reinitialized via the System Configuration Utility.
FLOPPY CONTROLLER FAILED	The floppy controller failed to respond to the reset command. Power down the system and check all appropriate connections. It the floppy controller contines to fail, you may need to replace it.
FLOPPY DISK TRACK 0 FAILED	The floppy drive cannot read track 0 of the floppy disk in the drive. Try another diskette. If the problem persists, you may need to replace the floppy drive.
FLOPPY INFORMATION INVALID - RUN SCU	The drive parameters stored in CMOS do not match the floppy drives detected in the system.
HARD DISK CONTROLLER ERROR	The hard disk controller failed to respond to the reset command. Possible solutions: 1) Check the drive parameters. 2) Power down the system and check all appropriate connections. If the problem persists, you may need to replace the hard disk controller.
HARDWARE INFO DOES NOT MATCH VIDEO CARD - RUN SCU	The video adapter type specified in CMOS RAM does not match the installed hardware.
KEYBOARD CONTROLLER FAILURE	The keyboard failed the self-test command. Check to see if the keyboard controller is properly installed. If the problem continues, replace the controller.
KEYBOARD FAILURE	The keyboard failed to respond to the RESET ID Command.
MACHINE IS LOCKED - TURN KEY	The system will not continue the boot sequence until you insert the key into the key lock and turn it.
NO BOOTABLE FLOPPY DRIVE 0 INSTALLED	No bootable floppy drive was detected. Possible solutions: 1) Power down the system and check all appropriate connections, cables, etc. 2) In configurations where no floppy drive is installed, run System Configuration Utility and make sure the diskette drive configuration item is set to "None". 3) Replace the diskette drive if necessary.
NO INTERRUPTS FROM TIMER 0	The periodic timer interrupt is not occurring.

Message	Possible Cause
RAM PARITY ERROR AT LOCATION xxxx	A RAM parity error occurred at the specified (hexadecimal) location.
ROM AT xxxx (LENGTH YYYY) WITH NON-ZERO CHECKSUM (zz)	An illegal adapter ROM was located at the specified address. An external adapter (such as a video card) may be causing a conflict.
TIME/DATE CORRUPT - RUN SCU	The time and date stored in the real time clock have be corrupted, possibly by a power loss.
UNEXPECTED AMOUNT OF MEMORY - RUN SCU	The amount of memory detected by POST does not match the amount specified in CMOS RAM.
CMOS RAM TEST FAILED	A walking buit test of CMOS RAM locations 0E (Hex) - 3F (Hex) failed.
DMA CONTROLLER FAULTY	A sequential read/write of the transfer count and transfer address registers within the primary and secondary DMA controllers failed.
FAULTY DMA PAGE REGISTERS	A walking bit read/write of the 16 DMA controller page registers starting at location 80 Hex failed.
FAULTY REFRESH CIRCUIT	A continuous read/write test of port 61h found that bit 4 (Refresh Detect) failed to toggle within an allotted amount of time.
INTERRUPT CONTROLLER FAILED	A sequential read/write of various Interrupt Controller registers failed.
ROM CHECKSUM INCORRECT	A checksum of the ROM BIOS does not match the byte value at F000:FFFF.

Final Quiz

1. What is the bus architecture of the OmniBook 5500?
2. What are the three types of displays on the 5500?
3 How can one tell which model has which display?
4. What size level 2 cache does the OmniBook 5500 have?
5. Can the level 2 cache be disabled?
6. How do you get to the configuration screens at boot time?
7. How do you get to the configuration screens from Windows?
8. What other OmniBook products share the same AC power adapter with the OmniBook 5500?
9 What are the user replaceable subassemblies in the OmniBook 5500?
10. What is the first POST and how do you decipher the output?
11 What are the three types of messages in the self test?
12. What is the TFT display quality?
13 What do you do if a customer forgets their password?
14. What happens if the drive lock password doesn't match the user password?
15. Can the OmniBook 5000 and OmniBook 5500 displays be interchanged?

HP OmniBook 5000 Course Evaluation form