Compaq Deskpro Workstation

Maintenance & Service Guide

Compaq Deskpro Workstation 300
Convertible Minitower Models

and Compaq Deskpro EXS

COMPAQ

Documentation (Not shown)

Maintenance and Service Guide	222098-001
Quick Troubleshooting Guide	153837-001
Service Reference Guide	225698-001

First Edition. November 2000.

Part Number: 215249-001

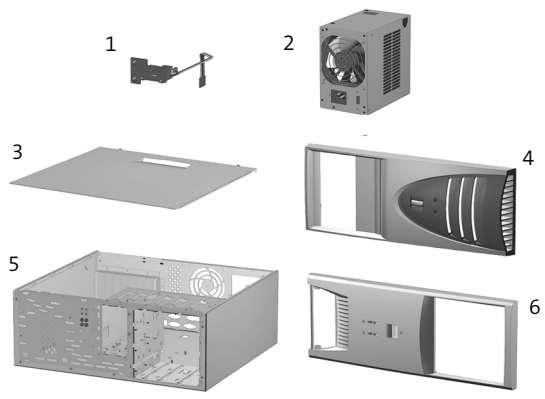
Spare Part Number: 222098-001

Keyboards - Deskpro EXS (Not shown)

Easy Access Keyboard-US	123130-xx1
Asia/Pacific	-37x
Australia	-B3x
Canada (French Canadian)	-05x
Japanese	-29x
Japanese (English)	-39x
U.S.	-00x

Keyboards - Deskpro Workstation 300 (Not shown)

Easy Access Keyboard-US	123130-xx1
Asia/Pacific	-37x
Europe	-A4x
French	-05x
German	-04x
Italian	-06x
Japanese	-29x
Japanese (English)	-39x
Korean	-ADx
Spanish	-07x
Swiss – English/Italian	-AHx
Swiss – French/German	-B5x
United Kingdom	-03x
U.S.	-00x



System Unit

1	Power switch with cable, LED and switch holder†	223488-001
2	Power supply, 265 Watt	203430-001
*	Power supply, 265 Watt with PFC (EMEA only)†	224884-001
3	Access panel	Not spared
4	Front bezel †	221187-001
5	Chassis assembly	Not spared
6	Front bezel – Deskpro EXS only	225238-001

*Not shown.
†Deskpro Workstation 300 only.

Mass Storage Devices

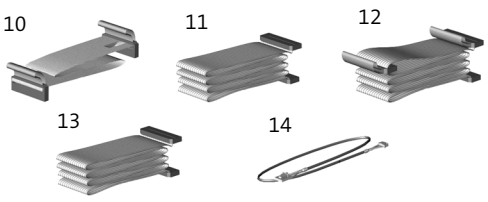
7	Diskette drive, 3.5-inch†	158266-001
*	Diskette drive, 3.5-inch (Deskpro EXS only)	123958-001
8	48X CD-ROM drive	187263-001
9	9.1-GB Hard drive †	160062-001
*	18.2-GB Hard drive †	160063-001
*	18.2-GB Hard drive †	194585-001
*	20-GB Hard drive †	180475-001
*	20-GB Hard drive †	157403-001
*	30-GB Hard drive †	180477-001
*	36-GB Hard drive †	167926-001
*	36.4-GB Hard drive †	192197-001
*	40-GB Hard drive (Deskpro EXS only)	202904-001
*	Zip Drive, 250-MB †	125776-001
*	Writeable CDRW Drive, 8/4/32x	101916-001
*	DVD-ROM Drive, 10x	215422-001

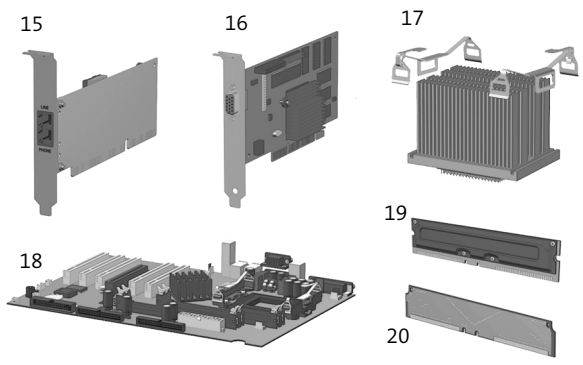
*Not shown.
†Deskpro Workstation 300 only.

Cables

10	Diskette drive cable, 18"	221186-001
	Cable Kit, includes:	166879-002
*	Diskette drive cable with twist, 11", with pull tab, center polarization (143218-001)	
11	40-position IDE data cable, 12.5" (105876-001)	
12	IDE Ultra ATA dual device, hard drive/CD-ROM cable, 18", with pull tab, (108950-015)	
*	Dual-LED power cable (1 ea.) (387727-001)	
*	Switch mounting bracket (3 ea.) (166777-001)	
*	Diskette drive/tape cable, with twist, no key, 34" (356107-001)	
*	Diskette drive cable with twist, 11", without pull tab (387795-001)	
13	IDE Ultra ATA dual device, hard drive/ CD-ROM cable, 14"	170225-001
*	IDE Ultra ATA , hard drive/CD-ROM cable, 18"	225881-001
14	Audio cable, 21"	149806-001
*	Audio CD cable	387527-001
*	5-device LVD SCSI cable	158277-001

*Not shown.

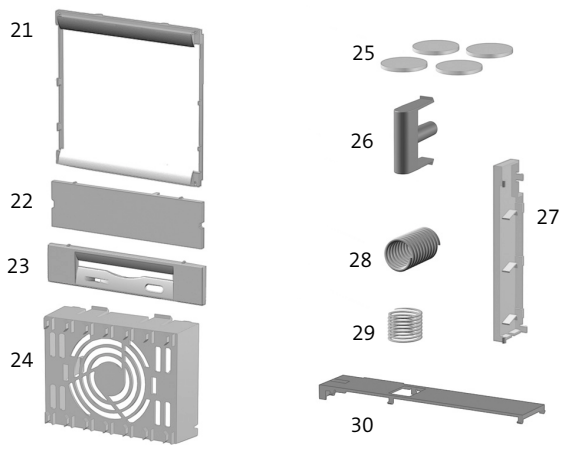


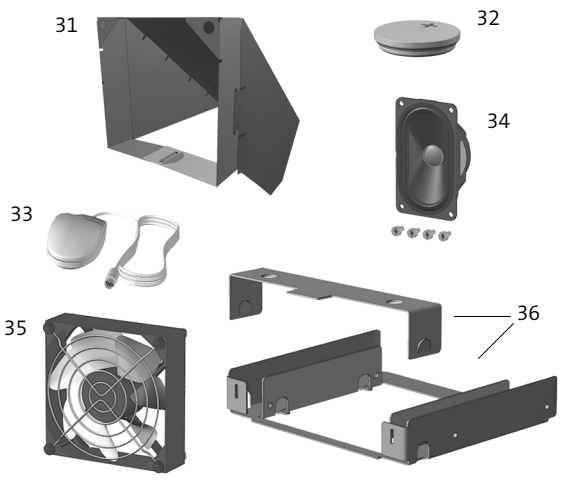


Standard and Optional Boards

15	NIC, 10/100 PCI, Intel PRO/100+	116188-001
*	NIC, 10/100 PCI, Intel PRO/100+, IPSEC †	215774-001
*	NIC, 10/100 PCI, 3Com 3C905C-TX, AOL †	118042-001
16	Nvidia TNT2 Pro 16-MB SDRAM AGP Controller †	179997-001
*	Nvidia Synergy II, 32-MB AGP Controller †	146140-001
*	Elsa GLoria II, 64-MB Graphics Controller †	174641-001
*	Matrox G450, AGP Graphics Controller †	203626-001
*	Nvidia Synergy III, 32-MB Graphics Card†	221492-001
*	Ultra3, PCI/SCSI Adapter Card†	158364-001
17	Heatsink with clip	225354-001
*	Processor, Intel P4, 1.4GHz/400MHz	221184-001
*	Processor, Intel P4, 1.5GHz/400MHz	221185-001
18	System board	221183-001
	Memory Modules (RIMM, 800MHz)	
19	64 MB	157108-001
*	128 MB †	157112-001
*	256 MB †	161454-001
20	CRIMM	158265-001
*	Modem, 56K, Controller-Based, PCI	157071-B21
*	Modem, 56K (Deskpro EXS only)	146803-001
*	Modem, V.90, International (Deskpro EXS only)	166358-002

*Not shown.
†Deskpro Workstation 300 only.





Miscellaneous Plastics Kits

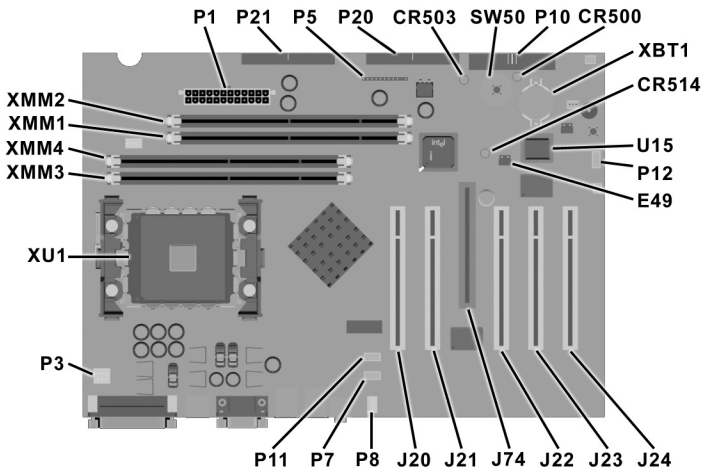
	Miscellaneous Plastics Kit, includes:	166878-001
21	Panel, sub (166835-001)	
22	Bezel, blank (166775-001)	
23	Diskette bezel (166776-001)	
24	Card guide (166778-001)	
25	Foot, rubber (4 ea.) (166939-002)	
26	Button, power (166774-001)	
27	Drivelock, DT (166779-001)	
28	Spring, power button (166837-001)	
29	Springs, drivelock (2 ea.) (166837-002)	
30	Drivelock, MT (166780-001)	
*	Retention mechanism (2 ea.) (350767-001)	
	Miscellaneous Plastics Kit, includes:	400549-001
*	Holder switch (166877-001)	
24	Card guide (166778-001)	
25	Foot, rubber (4 ea.) (166939-002)	

*Not shown

Miscellaneous Parts

31	Air baffle	224205-001
32	Battery	153099-001
33	Mouse, scroll, opal	334689-001
*	Mouse, 3-button, opal †	327716-001
34	Speaker, 40mm x 70mm	180809-001
35	Fan, 92mm	158275-001
36	Drive adapter, 3.5-inch	180808-001
*	Return kit	207742-001

*Not shown.
†Deskpro Workstation 300 only.



Connectors and Jumpers

CR500	P/S ON, 5V Aux LED
CR503	Power Button LED
CR514	3.3V Aux LED
E49	Clear Password Header (Installed = Enabled, Removed = Cleared)
SW50	Clear CMOS
P1	Power Supply Connector
P3	Microprocessor Power-In Connector
P5	Power Button / HDD LED / Power-On LED Header
XBT1	Battery Retainer
XMM3&4	RIMM Slot 3&4, Channel B

P7	CD-In Connector
P8	Chassis Fan Connector
P10	Diskette Drive Connector
P11	Second Audio Connector
P12	SOS Connector (3Com NIC only)
P20	Primary IDE Connector
P21	Secondary IDE Connector
J20-24	PCI Slots 1-5 (J24=Slot 5)
J74	AGP Slot
U15	System ROM
XU1	Primary Processor Socket
XMM1&2	RIMM Slot 1&2, Channel A

System Interrupts (IRQ)

IRQ	System Function
0	Timer Interrupt
1	Keyboard
2	Interrupt Controller Cascade
3	Serial Port (COM B)
4	Serial Port (COM A)
5	Available for PCI
6	Diskette Drive
7	Parallel Port (LPT 1)

IRQ	System Function
8	Real-Time Clock
9	Available for PCI
10	Available for PCI
11	PCI Steering Input
12	Mouse
13	Coprocessor
14	Primary IDE Controller
15	Secondary IDE Controller

System DMA

Hardware DMA	System Function
0	Unused
1	Unused
2	Diskette Drive
3	ECP Parallel Port LPT1 (Default; Alternate = DMA 0)
4	DMA Controller Cascading
5	Unused
6	Unused
7	Unused

System Memory Map

Size	Memory Address	System Function
512 KB	FFFFFFFFh to FFF80000	System ROM
2030 MB	FEDFFFFFh to 80000000h	PCI Memory Expansion
2047 MB	7FFFFFFFh to 00100000h	HOST or PCI Memory Expansion
128KB	000FFFFFh to 000E0000h	System ROM
128 KB	000DFFFFh to 000C0000h	PCI Option ROMs
128 KB	000BFFFFh to 000A0000h	Video RAM
640 KB	0009FFFFh to 00000000h	Base Memory

Clearing CMOS

The computer's configuration (CMOS) may occasionally be corrupted. If it does, it is necessary to clear the CMOS memory using push button switch SW50. This will reset CMOS values to factory defaults and will erase any customized information including passwords, asset numbers, and special settings.

To clear and reset the configuration, perform the following procedure:

1. Prepare the computer for disassembly.

CAUTION: The power cord must be disconnected from the power source before pushing the Clear CMOS Button (NOTE: All LEDs on the board should be OFF). Failure to do so may damage the system board.

2. Remove the access panel.
3. Press the CMOS button located on the system board and keep it depressed for 5 seconds.
4. Replace the access panel and turn the computer on.
5. Run F10 Computer Setup to reconfigure the system.

Disabling or Clearing the Power-On and Set-up Passwords

1. Turn off the computer and any external devices, and disconnect the power cord from the power outlet.
2. Remove the access panel.
3. Locate the header and jumper labeled E49.
4. Remove the jumper from pins 1 and 2. Place the jumper over pin 2 only, in order to avoid losing it.
5. Plug in the computer and turn on power. Allow the operating system to start. This clears the current passwords and disables the password features.
6. Re-enable the password features by repeating steps 1-3, and then replacing the jumper on pins 1 and 2.
7. Replace the access panel.

Refer to the Computer Setup (F10 Setup) instructions to establish new passwords.

CMOS Archive and Restore (Power Switch Override)

Each time the system starts, the system ROM saves a copy of NVRAM (including CMOS, passwords, and other system variables) in the flash ROM. Should the system become unstable, the last known good copy of NVRAM can be restored using a feature called "power button override." To restore NVRAM, do the following:

1. With the unit powered down, press and release the power button.
2. Immediately after pressing the power button (during POST), press and hold the power button until the unit powers down (about 4 seconds).

At the next startup, the ROM detects this "power button override" event and the backup copy of NVRAM is restored.

Because of this feature, users cannot power off the computer immediately after powering up. The video display must be active before the computer can be powered off.

CAUTION: Unplugging the power cord during POST can corrupt the splash screen. Flashing the ROM is required to restore the splash screen. The computer will continue to function even if the splash screen has been corrupted.

ICH Fixed I/O Registers

Port	Register Name
00h, 02h, 04h, 06h	Channel 0, 1, 2, 3 DMA Base & Current Address Regsiter
C0h, C4h, C8h, CCh	Channel 4, 5, 6, 7 DMA Base & Current Address Register
01h, 03h, 05h, 07h	Channel 0, 1, 2, 3 DMA Base & Current Count Register
C2h, C6h, Cah, CEh	Channel 4, 5, 6, 7 DMA Base & Current Count Register
10h-1Fh	**Aliased at 00h-0Fh**
20h	Master PIC ICW1 Init. Cmd Word 1 Register Master PIC OCW2 Op Ctrl Word 2 Register Master PIC OCW3 Op Ctrl Word 3 Register
21h	Master PIC ICW2 Init. Cmd Word 1 Register Master PIC ICW3 Init. Cmd Word 1 Register Master PIC ICW4 Init. Cmd Word 1 Register Master PIC OCW1 Op Ctrl Word 3 Register
24h-25h, 28-29h, 2Ch-2Dh, 30h-31h, 34h-35h, 38h-39h, 3Ch-3Dh	**Aliased at 20h-21h**
40h	Counter 0 Interval Time Status Byte Format Counter 0 Counter Access Port Register
41h	Counter 1 Interval Time Status Byte Format Counter 1 Counter Access Port Register
42h	Counter 2 Interval Time Status Byte Format Counter 2 Counter Access Port Register
43h	Timer Control Word Register Timer Control Word Register Read Back Counter Latch Command
50h-53h	**Aliased at 40h-43h**
61h	NMI Status and Control Register
70h	NMI Enable Register Real-Time Clock (Standard RAM) Index Register
71h	Real-Time Clock (Standard RAM) Target Register
72h	Extended RAM Index Register
73h	Extended RAM Target Register
74h-75h	**Aliased at 70h-71h**
76h-77h	**Aliased at 72h-73h or 70h-71h**
80h, 84h-86h, 88h	Reserved Page Registers
81h, 82h, 83h	Channel 2, 3, 1 DMA Memory Low Page Register
89h, 8Ah, 8Bh	Channel 6, 7, 5 DMA Memory Low Page Register
8CH-8Eh	Reserved Page Registers
8Fh	Refresh Low Page Register
91h-9Fh (except 92h)	**Aliased at 81h-8Fh**
92h	Fast A20 and INIT Register
A0h	Slave PIC ICW1 Init. Cmd Word 1 Register Slave PIC OCW2 Op Ctrl Word 2 Register Slave PIC OCW3 Op Ctrl Word 3 Register
A1	Slave PIC ICW2 Init. Cmd Word 2 Register Slave PIC ICW3 Init. Cmd Word 3 Register Slave PIC ICW4 Init. Cmd Word 4 Register Slave PIC OCW1 Op Ctrl Word 1 Register
A4h-A5h, A8h-A8h, ACh-ADh, B0h-B1h, B4h-B5h, B8h-B9h, BCh-BDh	**Aliased at A0h-A1h**
B2h	Advanced Power Management Control Port Register
B3h	Advanced Power Management Status Port Register
C0h, C4h, C8h, CCh	Channel 4, 5, 6, 7 DMA Base and Current Address Register
C1h	**Aliased at C0h**
C5h	**Aliased at C4h**
C9h	**Aliased at C8h**
CDh	**Aliased at CCh**
C2h, C6h, CAh, CEh	Channel 4, 5, 6, 7 DMA Base and Current Count Register
C3h	**Aliased at C2h**
C7h	**Aliased at C6h**
CBh	**Aliased at CAh**
CFh	**Aliased at Ceh**
D0h	Channel 4-7 DMA Command Register Channel 4-7 DMA Status Register
D1h	**Aliased at D0h**
D4h	Channel 4-7 DMA Write Single Mask Register
D5h	**Aliased at D4h**
D6h	Channel 4-7 DMA Channel Mode Register
D7h	**Aliased at D6h**
D8h	Channel 4-7 DMA Clear Byte Pointer Register
D9h	**Aliased at D8h**
DAh	Channel 4-7 DMA Master Clear Register
DBh	**Aliased at DAh**
DCh	Channel 4-7 DMA Clear Mask Register
DEh	**Aliased at DCh**
DEh	Channel 4-7 DMA Write All Mask Register
DFh	**Aliased at DEh**
F0h	Coprocessor Error Register
170h-177h	PIO Mode Command Block Offset for Secondary
1F0h-1F7h	PIO Mode Command Block Offset for Primary Drive 376h PIO Mode Control Block Offset for Secondary Drive
3F6h	PIO Mode Control Block Offset for Primary Drive
4D0h	Master PIC Edge/Level Triggered Register
4D1h	Slave PIC Edge/Level Triggered Register
400-47F	Super I/O
CF9h	Reset Control Register
F800-F87F	Reserved (power management)
FA00-FA3F	Reserved (GPIO management)
FC00-FC0F	Reserved (SMBUS controller)

NOTE: When the POS_DEC_EN bit is set, additional I/O ports get positively decoded by the ICH.