NEC
PowerMate 386/20

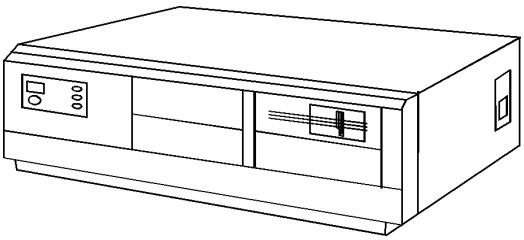

Figure 1. NEC PowerMate 386/20

Specifications

Processor
- Intel 80386 8/20MHz

Memory
- 2MB standard, expands to 10MB or 16MB

I/O Expansion Slots
- Five 8/16 bit
- Two 8 bit slots

Diskette Drive
- 1.2MB, 5.25''

Integrated Features
- Diskette drive controller
- No IDE interface
- Enhanced keyboard
- Parallel port
- Two RS-232C serial ports.

Internal Expansion Bays
- Four 5.25'' half height user accessible bays

I/O Architecture (Bus s supported)
- ISA

Power Supply
- 237 Watt

Diagnostics
- Normal Post Diags performed on Power UP of system.
- For Diags use 386/20 Test & Diagnostic disk.
- Troubleshoot according to errors found during test.

CMOS Access
- QAPlus/FE

Tools and Software Requirements
- 1/4'' Flat bladed screwdriver
- 2 PT Phillips screwdriver
- T-15 Torx screwdrivers
- Needle nose pliers
- Diags and formatted blank diskette
- Anti-static wrist strap

Removal Procedures
Before beginning removal complete the following steps:
1. Turn off the computer and any peripheral devices.
2. Disconnect AC power cord from outlet and system.
3. Disconnect all peripheral devices from the computer.
4. Discharge any static with static strap by grounding it.

System Cover
How to remove the cover:
1. Remove five screws at the rear of the system unit.
2. Unlock the cover if the cover lock is present.
3. Slide the cover toward the rear of the unit a few inches.
4. Pull the cover outward and lift up to remove.

Special Notices:
- The S2 switch or toggle should be set for the monitor type that is connected to the graphics card. (See chart)
- Warning: The power supply's PCB has capacitors that could cause injury if touched before they have had a chance to discharge within 10 minutes.

Jumper/Switch Settings

System Board -- SW1

Switch	Setting	Function
1	OFF *	Unit ID
2	OFF *	Unit ID
3	OFF *	Unit ID
4	OFF	Reserved
5	ON *	Test mode off
	OFF	Test mode on
6	ON *	0 wait state
	OFF	1 wait state

* Default

System Board -- SW2

Switch	Setting	Function
1	ON *	Display is color
	OFF	Display is monochrome
2	ON	FDC address, secondary assign
	OFF *	FDC address, primary assign
3	ON *	Turn on diskette drive controller.
	OFF	Turn off diskette drive controller.
4	ON *	Turns on serial port COM2
	OFF	Turns off serial port COM2
5	ON *	Turns on serial port COM1
	OFF	Turns off serial port COM1
6	ON *	Turns on parallel port
	OFF	Turns off parallel port
7	ON *	Turns on math coprocessor
	OFF	Turns off math coprocessor
8	ON	Math coprocessor 80387
	OFF *	Math coprocessor 80287
9	OFF*	Reserved
10	OFF *	Reserved

* Default

System Configuration, Test Mode

Jumper	Setting	Function
19A1	Released *	Test Mode Off
	Locked	Test Mode On

* Default, SW1-5 should be On

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Jumper/Switch Settings (Continued)

System Configuration, Intel 80287 CKM Set

Jumper	Setting	Function
19C1	1-2 * 2-3	Setting is 8, 10 MHz Setting is 5.3 MHz

* Default

System Configuration, Intel Selection

Jumper	Setting	Function
19C2	1-2 * 2-3	Setting is 8, 10 MHz Setting is 5.3 MHz

* Default

System Configuration, 8284 Input Clock Selection

Jumper	Setting	Function
19C3 or 27F1	1-2 * 2-3	Setting is 10 MHz Setting is 5.3, 8 MHz

* Default

System Configuration, Diskette Drive Type

Jumper	Setting	Function
23G1	1-2 * 2-3	Normal diskette drive type Special diskette drive type

* Default

System Configuration, Manufacturing

Jumper	Setting	Function
11L1	Jumped Unjumped *	Manufacturing switch on Manufacturing switch off

* Default

System Configuration, G9ZNH HD Controller

Jumper	Setting	Function
W1	1-2 *	HS3 selects for 16 head drives.
W2	Unjumped *	Wait state option
W3	1-2 *	Primary board addressing
W4	1-2 *	Controller output drivers disabled by firmware.
W5	Unjumped *	Address bus control option
W6	Unjumped *	Address bus control option
W7	Unjumped *	Cntrl processor mode selected
W8	Unjumped *	Cntrl processor mode selected
W9	Unjumped *	Enable Caching
W10	Unjumped *	Diagnostic register non-latched.

* Default

System Configuration, G8BUT HD Controller

Jumper	Setting	Function
W8	Jumped *	Mode Select
W14	Unjumped *	Select translation mode
W15	Unjumped *	Cache enable

* Default

System Configuration, G9YAQ Video Controller

Jumper	Setting	Function
6G1	1 - 2 2 - 3 *	CPU - Ready signal " " " "
7K2 **	1 - 2 * 2 - 3	256Kb memory capacity 64Kb memory capacity
4J2	1 - 2 2 - 3 *	I/O address port 2 (hex) I/O address port 3 (hex)
3K3	1 - 2 * 2 - 3	Advance color/ other high res. All other displays

* Default

** Jumper is Fixed w/ board having toggle switch (S2)

System Configuration, G8ABH Video Controller

Jumper	Setting	Function
S1	2 - 3 * 1 - 2	Selects address 3XX Selects address 2XX
S2	UP * DOWN	Advanced Color / High Resolution All other displays
S3, S4	S3:2-3 * S4:1-2 * S3:2-3 S4:2-3 S3:1-2 S4:1-2	Selects ROM type 27256 Selects ROM type 27512 Selects ROM type 27128
S6	2 - 3 * 1 - 2	Selects 132 columns Selects feature connector
S7	3 - 7 * 1 - 5 2 - 6 4 - 8	Selects 31ms cycle for mouse Selects 8ms cycle for mouse Selects 15ms cycle for mouse Selects 61ms cycle for mouse
S8	1 - 5 * 2 - 6 3 - 7 4 - 8	Select IRQ051 for mouse Select IRQ041 for mouse Select IRQ031 for mouse Not Used
S9	2 - 3 * 1 - 2	Disables emul. of CGA, MDA, Herz Enables emul. of CGA, MDA, Herz.
S10	2 - 3 * 1 - 2	Disables 400 line mode Enables 400 line mode **
S11	2 - 3 * 1 - 2	Selects ROM BIOS linear mode. Selects ROM BIOS paged mode.
S12	2 - 3 * 1 - 2	Selects ROM BIOS linear mode. Selects ROM BIOS paged mode.
S13	2 - 3 * 1 - 1	Disables Parallel mouse cntrlr. Enables Parallel mouse cntrlr.

* Default

** Only available w/NEC Adv. Monitor or MultiSync

AGB Plus/AGB As Primary Display Board Switch 5 Switch Settings

S5-1	S5-2	S5-3	S5-4	Configurations
On	Off	Off	On	40 x 25 color
Off	Off	Off	On	80 x 25 color
Off *	On *	On *	Off *	Advanced color, High-Res
On	On	On	Off	Advanced color, Emulation
On	Off	On	Off	Mono w/other 40x25 color
Off	Off	On	Off	Mono w/other 80x25 color

* Default

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Jumper/Switch Settings (Continued)

AGB Plus/AGB As Secondary Display Board

Switch 5 Switch Settings

S5-1	S5-2	S5-3	S5-4	Configurations
On	On	On	On	40 x 25 color
Off	On	On	On	80 x 25 color
Off *	Off *	On *	On *	Advanced color, High-Res
On	Off	On	On	Advanced color, Emulation
On	On	Off	On	Mono w/other 40x25 color
Off	On	Off	On	Mono w/other 80x25 color

* Default

Field Replaceable Units

Memory	OEM Part	IBM Part
G8BSM 2MB memory	136-007897-611A	67H9110
512KB memory exp. mod.	136-005873-002A	67H9092
512KB memory exp. brd.	136-005873-001A	67H9091
4MB memory exp. board	136-007954-250A	67H9114
8MB memory exp. board	136-008174-656A	67H9119

Controller	OEM Part	IBM Part
G9ZNH- ST506 HD cntrlr.	808-865892-002A	69H5453
G8CDQ- ST506 HD cntrlr.	808-865892-007A	62H1455
G8AGB- ESDI HD cntrlr.	808-865892-004A	48H2562

Internal Hard Drive	OEM Part	IBM Part
80MB, 5.25'', IDE HD	136-007954-223A	67H9113
100MB, 3.5'', ESDI HD	134-500571-159O	67H9043
140MB, 5.25'', ESDI HD	136-008174-620A	49H6837
300MB, 5.25'', ESDI HD	136-008174-621A	67H9117

System Boards	OEM Part	IBM Part
G8BUJ- System Board	158-050129-000	67H9688

Diskette Drives	OEM Part	IBM Part
5.25'', 360KB Floppy	136-005869-002A	67H9088
3.5'', 720KB Floppy	136-006372-424A	67H9094
5.25'', 1.2MB Floppy	136-007892-207A	47H8595
3.5'', 1.44MB Floppy	136-007954-222A	67H9112

Video Boards	OEM Part	IBM Part
Adv. graphics board plus	136-006793-A	47H8585
Advanced graphics board	136-005872-A	67H9090
G9XZT-Color graphics bd.	136-005871-A	67H9089
G8BYL video graphics bd.	136-008076-A	47H8600

Cables	OEM Part	IBM Part
5'' HD B cable	808-840069-011A	47H9817
5'', ESDI HD, signal cable	808-840656-005A	67H2180
COM1/COM2 relay cable	808-840649-001A	47H9824
Printer port relay cable	808-840648-010A	47H9823

Miscellaneous	OEM Part	IBM Part
Lithium Battery, (6v)	804-020612-001A	55H1254
Power Supply (237 Watt)	808-865745-001A	49H5539
Keyboard PS/2 style	808-866923-005A	47H9970