TECRA 780CDM Product Specifications

780CDM: PA1264U-T2C (5.1 billion byte HDD)
(8.1 billion byte HDD Available CQ3'98: PA1267U-T2C)

PROCESSOR	Intel Mobile Pentium II® 266MHz (1.7v/1.8v/8W)
Integrated Coprocessor	Yes
Processor Cache (L1) Capacity	32KB: (16KB code; 16KB data)
LEVEL 2 (L2) CACHE	**Yes: 512KB** *Integrated into CPU*
Type of cache memory	2 Mbit Pipelined Burst Synchronous SRAM (3.3v)
Access Time	8 ns
Data/Address Bus Width	64-bit / 32-bit
Front Side Bus Speed	66 MHz
Supported Standards	ACPI v1.0 Ready, Wired for Management v.1.1a
MEMORY: 64 Mbit **EDO DRAM,** 3.3V	
Standard	64MB *(on board, 2 free memory slots)*
Maximum	192MB
Speed	60ns
Hyper Page mode memory access	Yes
Data/Address Bus width	64 bit/32-bit
Data Bus speed	66 MHz
BIOS	Yes: (512KB 4Mbit FLASH EEPROM, 3.3V)
Standards supported	APM(1.2), PnP(1.0A), VESA(2.0), DMI(2.0), DDC2B, DPMS, ACPI(1.0), PCI

SYSTEM ARCHITECTURE	Chipset	Connecting Devices
PCI BUS (v2.1): (32-bit, 33 MHz)	Intel 440BX	PC Card Slots, Expansion Bus, Modem DSP, Video Capture controller HDD, CD-ROM
PCI BUS (v2.1): (32-bit, **66 MHz**)	Intel 440BX	Graphic Controller
ISA BUS: (8-bit/16-bit f/BIOS, 8 Mhz)	N/A	BIOS, Sound chip, FDD, Keyboard controller

STORAGE	
Removable HDD (2.5" Enhanced IDE)	5.1 billion bytes (Read/Write: 12msec/13msec) , Buffer: 512KB
Available CQ3'98	8.1 billion bytes (Read/Write: 12msec/13msec) , Buffer: 512KB
Height	17mm
Burst Data Transfer Rate	Ultra DMA33 (33MB/sec), DMA Mode2 (16MB/sec), PIO Mode 4 (16MB/sec)

SELECT BAY DEVICES	DESCRIPTION	WEIGHT
Second Battery Li-Ion (10.8V, 3600mAH)	*Optional: Part# PA2446U*	1.15 lbs.
Modular FDD (3.5" 1.44MB)	*Included/Swappable with CD-ROM*	
FDD Dimensions	4.57"L x 3.78"W x .5"H	.62 lbs.
Simultaneous FDD & CD-ROM Support	Yes: External FDD adapter included	
FDD Adapter Dimensions	7.0"L x 5.5"W	.25 lbs.
Modular HDD (2.5" Enhanced IDE)	*Optional/For use in SelectBay only: Part # PA2607U (Weight .59lbs.)*	
Capacity	4.0 billion bytes (Read/Write: 13msec/14msec), Buffer: 512KB	
Height	12.7mm Slimline *(Not compatible with Desk Station V Plus)*	
Burst Data Transfer Rate	Ultra DMA Mode2 (33MB/sec), DMA Mode2 (15MB/sec), PIO Mode 4 (14MB/sec)	
Modular CD-ROM: .ATAPI (Enhanced IDE)	**Toshiba XM-1602B**	
5.25" 20X Max. speed	*Installed/ For use in SelectBay only (Weight .70lbs.)*	
Random Access Time	135 ms @ 20X Max speed	
Average Sustained Transfer Rate	3420KB/sec @ 20X Max speed; 2394KB/sec @ 14X Average speed	
CD-ROM Compatibility	Red Book, Yellow Book, CD-ROM XA, CD-I Bridge (Photo-CD)	
	CD-I, CD-I Ready, CD-G, Multisession (Photo-CD, CD-Extra), CD-RW[1]	
Modular DVD-ROM: Toshiba SD-C2002	*Optional: Part# PA2613U --- DVD-ROM only (no DVD-RAM)*	
MPEGII video support	*Yes: Built into 780CDM. Not supported by Windows NT.*	
Dolby™Digital Surround Sound AC-3	*Yes: Built into 780CDM. Not supported by Windows NT.*	

Operation modes	DVD-ROM	CD-ROM
Access Speed	2X	16X
Random Access Time	180ms	120ms
Sustained Data Transfer rate	2,700 KB/sec	2,400 KB/sec
Storage space/disk	4.7 GB	4.7 GB

1. Read only: Reads CD-RW format, but does not write.

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DISPLAY

Type	13.3"Diagonal TFT Active Matrix (1,024 x 768 resolution)
Dot Pitch	.26mm x .26mm
Contrast Ratio	100:1 (min)

VIDEO

Memory: 16Mbit SGRAM, 3.3V	4 MB
Access Speed	83 MHz *with Hyper-page mode support*
Data Bus Width/Clock Speed	64-bit/33 Mhz
Graphic Controller	
PCI Bus Architecture w/burst mode	Yes: 32-bit, 33 MHz
Standards supported	DPMS, PnP v.1.0A, VESA 2.0
DuoView™ Device support[1]	Allows display of different images (or the same image) on following screen combinations: notebook/external monitor; notebook/TV; external monitor/TV
Controller Chip	S3 Virge/MX 3D (= 86C260) with *Frame-based AGP support*
64-bit BitBLT Engine	Yes
2D Supported Features	BitBLT, H/W Cursor, DirectDraw
3D Supported Features	
Modeling	Fogging
Shading	Flat shading, Gouraud shading
Rendering	Bilinear/Trilinear texture mapping , Anti-aliasing, MIP mapping, Z-buffering
Direct3D support	Yes
OpenGL	Yes
Digital Video Accelerator	
YUV Color Space Conversion	Off-loads conversion from CPU for higher performance full motion video without compromising picture quality or frame rate.
Scaling/ Interpolation	Yes: vertical & horizontal
Zoomed Video Port Support	Yes: vertical & horizontal
DirectVideo support	Yes:w/Game SDK driver fr/Microsoft
DirectMPEG	Yes
TV Encoder support	Yes: NTSC/PAL video out, and S-Video out with flicker reducing filter

INTERNAL VIDEO SUPPORT

		Colors	Refresh Rate (Non-Interlaced)
Smaller Image	640 x 480	24-bit (16.7M)	N/A
Smaller Image	800 x 600	24-bit (16.7M)	N/A
Full Screen	1024 x 768	24-bit (16.7M)	N/A
Virtual Display Mode	1280 x 1024	16-bit (64K)	N/A
Virtual Display Mode	1600 x 1200	8-bit (256)	N/A

EXTERNAL VIDEO SUPPORT (CRT)

	Colors	Refresh Rate (Non-Interlaced)
640 x 480	24-bit (16.7M)	85 Hz
800 x 600	24-bit (16.7M)	85 Hz
1024 x 768	24-bit (16.7M)	85 Hz
1280 x 1024	16-bit (64K)	75 Hz
1600 x 1200	8-bit (256)	87 Hz (Interlaced)

VIDEO CAPTURE SUPPORT

	Colors	Fps (w/ZV Port/.AVI file)
160 x 120	Up to 16.7M	30
320 x 240	Up to 16.7M	15
640 x 480	Up to 16.7M	3

Input sources	ZV Port-enabled PC Card or ZV Port-enabled External Camera unit
Connected Bus type	PCI bus (for ProShare/Video conferencing) and ZV port (normal capture)
Supported file formats	.BMP, .JPEG, .AVI (for video)
Maximum # of Still images to be stored	12
Maximum time of video recording	Varies by free space of main memory and HDD

1. Future operating systems may support simultaneous display of different resolutions on mutiple devices.

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CAMERA

Mount	External (hook on right edge of display panel)
Type	1/4-inch CCD
Effective pixels	640 x 480 (= 307.2K)
Lens (Manual Focus)	F2.8, f = 4.6 mm
Focusing range	> 10 cm, by manual focus
Viewing angle of Center	Horizontal: ±22.5 degrees (45° total); Vertical: ±16.9 degrees (33.8° total)
Minimum illumination	40 luxes
Tilting angle	-50 to +50 degrees
Panning angle	-45 to +225 degrees (horizontal)
Interface connector	Multiplexed YUV 8-bit digital/26 pin proprietary connectory
Interface cable length	50cm
Automatic Light Control (ALC)	Yes: AGC (0 db~ +12db); ELC (1/60 ~ 1/10,000 sec)
White Balance ATW	Yes
Dimensions	5.63"L x 1.54"W x .83"D
Weight	.26 lbs.

SOUND SYSTEM

Chipsets:	Yamaha 3D sound effect-enabled OPL3-SA3
Functions supported	
Dolby™Digital Surround Sound AC-3	*Yes: (w/Windows 95 only)*
Sound formats supported:	SoundBlaster Pro™ v.3.01, MIDI, Windows Sound System v.2.0
16 bit stereo audio playback/record	Yes: w/48kHz maximum sampling rate
Synthesis Policy	FM synthesis with Wavetable software support
Full duplex function	Yes: including simultaneous playback and record
DirectSound/Direct3DSound support	Yes: with Windows 95 Game SDK driver from Microsoft
Volume control	Yes
Speaker system:	Two top-mounted stereo speakers (28mm, 16 Ω)

INTERNAL MODEM

	K56Flex *with DSVD, V.34 and V.80 support for Video Conferencing*
Type	V1.1 Lucent Modem with up to 48-50 Kbps "downstream" transfer speeds
	Software upgradeable for future standard updates
DAA support	US/Canada
Data support	
Protocols supported	Bell-103/212A, CCITT-V.21/V.22, V.23, V.22bis, V.32, V.32bis, V.34
Error correction	MNP 1-4
Data compression	MNP 5 for upto 2X data compression, CCITT V.42 bis for upto 4X data compression
Fax support	Fax class 1, Class 1 ECM
Protocols supported	V.21 ch2, V.27 ter, V.29, V.17
Cellular support	*US Cellular support under Windows 95 only*
Protocols supported (Phone)	Bell-103/212A, CCITT-V.21/V.22, V.23, V.22bis, V.32, V.32bis, V.34
Protocols supported (Fax)	V.21 ch2, V.27 ter, V.29, V.17
Fax class	Fax class 1, Class 1 ECM
Phones supported	Motorola Micro TAC (DPC550, Alpha, Lite, and Ultralite) and Motorola Elite *only*
Telephony Functions *(Windows 95 only)*	
Standard software	Ring Zero RingCentral telephony software
Functions supported	Speaker phone, Telephony Answering Machine, Ring Wake-up Resume
	Incoming Call Discrimination
DSVD protocols supported	ITU-T **V.70**, V.75, V.76, G.729, V.80, V.25terA, V.34, V.8bis
Video Conferencing *(Windows 95 only)*	
Standard software	Intel Video Phone with Proshare Technology 2.0 and Microsoft Netmeeting 2.1
Protocols supported	**ITU-T H.323 *(Internet video conferencing);* H.324 *(POTS video conferencing);***
	H.245; H.223; G.723; H.263; **V.80**; V.25terA; **V.34**; V.8bis
Data sharing support	T.120; T.121; T.122; T.123; T.124; T.125; T.126; T.127

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EXPANSION SLOTS	LOCATION	
Two Stacked PC Card Slot[2]	Yes: Left side *(CardBus & ZV Card Ready)*	
32-bit, 3.3V PC CardBus Support	Yes	
16-bit, 5.0V PC Card Support	Yes	
Two Internal Memory Slots	Yes: Below left-half of the palm rest (above main HDD)	

EXPANSION PORTS	LOCATION	
One 9-Pin Serial (16550 UART compliant)	Yes: Rear of unit	
One 15-Pin RGB (SVGA video)	Yes: Rear of unit	
One Expansion Bus	Yes: Rear of unit	*(for use with Docking Station or Port Replicator)*
One 25-Pin Parallel (8 bit ECP)	Yes: Rear of unit	
One DC IN port	Yes: Rear of unit	
Noteworthy security lock port	Yes: Rear of unit	
Microphone (3.5mm mini jack, monoaural)	Yes: Rear of unit	
Headphone (3.5mm mini jack, stereo,16Ω min)	Yes: Rear of unit	*(stereo, common with Headphone/AC3 digital)*
Line-in (3.5mm mini jack, stereo, 2V rms)	Yes: Rear of unit	
Line-out (3.5mm mini jack, stereo, 0.7V rms)	Yes: Rear of unit	
Dolby AC3 Digital	Yes: Rear of unit	*(5.1 channel, common with Headphone/AC3 digital)*
One (PS/2) 101 Keyboard/Mouse port	Yes: Rear of unit	*(supports "Y"Connector)*
One S-Video out port	Yes: Rear of unit	
One NTSC/PAL out port	Yes: Rear of unit	
One Fast Infrared port	Yes: Rear of unit	*(IrDA 1.1:4 Mbps compatible)*
One External Floppy Drive port	Yes: Left side	
Two Universal Serial Bus (USB) ports	Yes: Left side	*(Supports 127devices. Throughput Rate: 12Mbits/sec.)*
One Power switch	Yes: Left side	
One Reset Button	Yes: Left side	
Noteworthy security lock port	Yes: Left side	*(Use when docked)*
One RJ-11 port for internal modem (supplied)	Yes: Right side	
One Cellular Modem port[3]	Yes: Right side	
One External Camera port	Yes: Right side	*(Proprietary 26-pin connector)*

KEYBOARD		
84keys, 3mm Travel	Yes: 12 dedicated function keys; Cursor control (8 Keys, Inverted "T")	
Windows 95 support	Yes	
Keyboard tilt	Yes	
Numeric keypad (Integrated Overlay)	Yes	

Integrated Pointing Device	AccuPoint™

Enhanced Port Replicator II (Optional)	Part# PA2716U
Two Type III CardBus ready PC Card slots	Yes: each slot supports one card
Supported Interfaces	Serial, parallel, PS/2 keyboard, PS/2 mouse, DC in, SVGA monitor, FDD port, Lock slot , joystick/MIDI, audio line-in, line-out, headphone, microphone

Desk Station V Plus (Optional)	Part# PA2710U
Supported Interfaces	(2) Full length 32-bit PCI/16-bit ISA slots; (1) Half Length 32-bit PCI slot; (2) Type III PC Card slots; (1) SCSI II; (1) 5.25" half height drive bay; (1) Select Bay for Modular FDD or CD-ROM
Ports	Serial, parallel, PS/2 keyboard, PS/2 mouse, DC in, SVGA monitor, FDD port, Lock slot , joystick/MIDI, audio line-in, line-out, headphone, microphone
Other features	Designed for Windows 95 and PNP; Hot Docking Support

2. Slot supports two Type II PC Cards or one Type III PC Card.   3.Requires the purchase of appropriate cellular cable: 991-40042.

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POWER

60W Autosensing External AC Adapter	5.51"L x 2.95"W x .98" --- .95 lbs. (Part#:NW2444U)		
Input (Voltage/Frequency)	100-240V; 50-60Hz		
Output (Voltage/Amps)	15 VDC; 4.0A (max)		
Battery Type: Li-Ion (3.6V 1200mAh, 12 cells)	Yes: Part# PA2445UR (2.83"W x 1.14"H x 6.61"L) -- 1.1 lbs.		

Battery Life	One battery	Two batteries	
Full Power mode	3+ hrs.	6+ hrs.	
Low Power mode	4 hrs.	8 hrs.	

Recharge Time: Main Battery[4]	Notebook alone	Docked In Port Replicator	Docked In Desk Station
(Computer Off/On)	2.5 hrs./3.2 hrs.	3.8 - 4.0 hrs./5-12 hrs.	4-5 hrs./ 6-12 hrs.

Power Savings: MaxTime®; APM v.1.2 BIOS support; CPU Sleep mode; Display Auto Off
LCD Brightness switch (software); HDD Auto Off

DIMENSIONS
12.0"W x 9.4"D x 2.1"H

WEIGHT *(includes 1.1 lbs. battery)[5]*
7.6 lbs. (with FDD installed); 7.9 lbs. (with CD-ROM installed)

BUNDLED SOFTWARE: Windows 95; RingZero RingCentral V1.0 telephony application; Microsoft VidCap software; Puma Intellisync 97; Video Brush scanning software; Microsoft Netmeeting 2.1; Intel Proshare 2.0; Microsoft Internet Explorer 3.02 (Export Version); Yamaha Station; Mediamatics MPEG Arcade Pak; Maxtime; HW Setup; Fn-esse

Included on CD: Internet Explorer 4.0 (Export Version); LANDesk Client Manager 3.2, Intel Video Interactive (32-bit,v.4.1) On-line registration; Online manual. *Units ship with Windows95 Companion CD and Enhanced Recovery CD.*

SECURITY
Lock slot, Password:power-on, supervisor, HDD access, Docking station eject

WARRANTY
3 YR Parts & Labor (battery 1 year)

ENVIRONMENTAL SPECIFICATIONS

	Operating	**Non-operating**
Temperature:	41°F (5°C) to 95°F (35°C)	-4°F (-20°C) to 149°F (65°C)
Thermal Gradient 20º C per hour (max.)	--	--
Relative Humidity: Operating	20% to 80% non-condensing	10% to 90% non-condensing
Altitude: Operating	-197 to 9,843ft. (-60 to 3000m)	-197 to 32,808ft. (-60 to 10,000m)
Shock: Operating	10G (11ms); 1.5G w/CD-ROM installed	60G (11ms); 50G w/CD-ROM installed
Vibration: Operating	0.5G; 0.25G (5~500Hz) w/CD-ROM	1G; 1G (5~500Hz) w/CD-ROM

4. Recharge time may vary depending on condition of battery, and consumption of power for function performed during recharge: eg. use of LCD, HDD/CD-ROM, sound and modem, CardBus card in Port Replicator or PCI card in Desk Station V Plus. 5. Optional 2nd battery PA2446UR weights 1.15 lbs.