

Technical Specifications

Processor	Model	Processor	Clock speeds
	Satellite 230CX	Intel Pentium with MMX™-technology (2.5-volt core using 'Voltage Reduction Technology')	133 MHz internally 66 MHz externally (Switchable speeds for power saving)
Cache memory	32 KB on CPU chip	64-bit	

System memory	Memory type	Amount	Access speed	Data bus width
	EDO RAM	16 MB	60 nanoseconds	64-bit
	Maximum memory expansion (EDO RAM)	144 MB	60 nanoseconds	64-bit
	BIOS Flash EPROM	256 KB	150 nanoseconds	8-bit
	Video RAM	2 MB	50 nanoseconds	16-bit
	Level 2 cache	256 KB	14 nanoseconds	8-bit

Memory technology	Technology	3.3-volt
	No. of memory expansion slots	1
	Expansion module sizes	8, 16, 32, 48 and 128 MB

Memory map	Address	Size (KB)	Usage
	00000000-0009FFFF	640	System working memory
	000A0000-000BFFFF	128	Video RAM area
	000E0000-000EFFFF	64	Video BIOS RAM (default)
	000E0000-000EFFFF	64	Video BIOS (RAM shadow)
	000F0000-000FFFFF	64	System BIOS (RAM shadow)
	00100000	rest of memory up to 144 MB maximum	System extended memory
	FFFE0000-FFFEFFFF	64	SM-RAM in SM mode
	FFFF0000-FFFFF000	64	System BIOS ROM
	FFFFF000-FFFFF000		
	FFFFF000-FFFFF000		

Diskette drive	Specification	High setting	Low setting
	Media supported	3.5 inch 2HD	3.5 inch 2DD
	Storage capacity	1.44 MB	720 KB
	Rotation	300 rpm	300 rpm
	Transfer rate	500 kbit per second	250 kbit per second
	Bytes per sector	512	512
	Sectors per track	18	9
	Dimensions	126 x 96 x 12.7 mm	

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Hard disk drive	Formatted capacity	1.44 billion bytes (1.34 GB)
	Max. data transfer to media	38.6 – 69.8 Mbits/sec
	Average seek time	13 ms (typical)
	Track-to-track seek time	3 ms (typical)
	Drive rotation	4,200 rpm
	No. of disks	2
	No. of read/write heads	6
	Coding	8-9 RLL
	Bytes per sector	512
	Interface	ATAPI (Enhanced IDE)

Optional CD-ROM (Swappable with floppy disk drive)	Supported CD-ROMs	12 cm/8 cm	
	Applicable disc format	Red-Book, Yellow-Book, CD-ROM XA, CD-Bridge, (Photo-CD, Video-CD) CD-I, CD-I Ready, CD-G, Multisession (Photo-CD, CD-Plus)	
	Rotation speed (rpm)	800 to 2120 (4X)	2200 to 3500 (10X)
	Sustained data transfer rates (typical)		
	Yellow-book mode 1	600 KB/s (4X)	1500 KB/s (10X)
	Yellow-book mode 2	684 KB/s (4X)	1710 KB/s (10X)
	Burst (Atapi interf. PIO mode)		11.1 MB/s (3)
	Average random access	200 ms (4X)	180 ms (10X)
	Average full stroke access	340 ms (4X)	320 ms (10X)
	Dimension	128 x 12.7 x 129 mm	5.0 x 0.5 x 5.0 inches

Screen	Screen type	Advanced DSTN
	Number of dots	800 x 600
	Dot pitch	0.3075 x 0.3075 mm
	Display area	245.98 x 184.48 mm
	Diagonal	12.1 inch
	Contrast ratio	40:1 (typically)
	Colour palette	64 K
	Response rise/fall	100 ms / 50 ms
	LCD brightness (AC operated)	80 NIT
	LCD brightness (battery op.)	50 NIT

* Maximum colours with dithering. Video modes with more colours use optimised colour adaption.

Video modes	Video display	Resolution	Max. refresh rate	Max. number of colours
	Internal display VGA		640 x 480	85 Hz
Internal display SVGA		640 x 480	85 Hz	up to 64 K colours
Internal display SVGA		800 x 600	85 Hz	up to 64 K colours
Dual display VGA		640 x 480	60 Hz	16 colours
Dual display SVGA		640 x 480	60 Hz	up to 16.7 million colours
Dual display SVGA		800 x 600	60 Hz	up to 16.7 million colours
Dual display SVGA*		1024 x 768	60 Hz	up to 64 K colours
Dual display SVGA*		1280 x 1024	60 Hz	up to 256 colours
External display SVGA		640 x 480	85 Hz	up to 64 K colours
External display SVGA		800 x 600	85 Hz	up to 64 K colours
External display SVGA		1024 x 768	85 Hz	up to 256 colours
External display SVGA		1280 x 1024	85 Hz	up to 256 colours

* More pixels required than are available. Picture will scroll.

Physical dimensions	Weight	3.1 kg* (8 lbs)
	Size (W x L x H)	303.6 x 239 x 50.5 mm
	Size (inches)	(11.9" x 9.4" x 1.9")

*Including FDD, cables & battery.

Battery types	Main	Back-up	RTC
	Lithium-ion 3.6 V x 1200 mAH	NiH ₂ 7.2 V x 110 mAh	NiH ₂ 3.6 V x 30 mAh

Resume battery back-up	Main	5 days (typical)
	Back-up	4 hours (typical)
	RTC	1 month (typical)

Battery life	Maximum life	2.5 Hours: PC Magazine's Rundown V2.0 Battery life doubles with 2 nd battery
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AC adaptor	Input voltage	100 - 240 V AC, self-adjusting
	Frequency	50 - 60 Hz
	Output voltage	15 V
	Output current	3 A max.
	Power dissipation	45 W max.
	Weight	340 g

Connectivity & expansion	PC ports	Card Station III	Expansion
	Serial	Serial	PC: 1 PC Card slot for 2 Type II cards or 1 Type III card CardBus and ZV port ready
	Parallel (ECP)	Parallel (ECP)	PC: Internal memory module slot
	(S)VGA monitor	(S)VGA monitor	Card Station: 2 Type III PC Card slots
	External FDD	External FDD	
	Card Station connector	Notebook connector	
	Serial infrared port	MIDI/Joystick connector	
	USB	2x USB	
	PS/2 keyboard/mouse	PS/2 keyboard/mouse	
	Audio in	Audio in/out	
	Headphone	Headphone	
	External microphone	Kensington Cable Lock (PC Card slot security integrated)	
	Select Bay for FDD/CD-ROM/2 nd Battery/2 nd HDD		

Sound system	16-bit, SoundBlaster Pro compatible & Windows Sound System V.2.0
	MIDI and Wave support
	Built-in microphone and 2 stereo speakers
	Internal microphone which is disabled when an external speaker is connected

Bundled software	PCs with Microsoft Windows®95:
	<ul style="list-style-type: none"> • Toshiba utilities and drivers for Windows® 95 • Hypertext on-line help (User's Manual) • Puma Intellisync '97
	Other Microsoft operating systems on request

Environmental conditions

	Operating	Non-operating
Temperature	5° C to 35° C	-20° C to 65° C
Max. thermal gradient	20° C/hour	20° C/ hour
Relative humidity	20% to 80% non-condensing	10% to 90% non-condensing
Altitude (relative to sea level)*	-60 to 3,000 m (-200 to 10,000 feet)	-60 to 10,000 m (-200 to 30,000 feet)
Shock**	10 G	60 G
Vibration**	0.25 G	1 G

* Aeroplane cabin pressures simulate low altitudes, so flying higher causes no restrictions.
 ** When CD-ROM drive installed.

Certification

This product is approved for electrical safety and/or electromagnetic compatibility (EMC) by the following associations:	
TÜV	
FIMKO	
DIN GOST TÜV	
SEV	
UL	
CSA	
FCC	
SASO	
SAA	
The manufacturer declares that this product complies with the following directives and regulations for the CE-marking. The party responsible for CE approval is Toshiba Europe GmbH.	
93/68/EEC	CE marking directive
89/336/EEC	EMC directive
73/23/EEC	Low voltage directive
91/263/EEC	Telecommunication Directive
EN 60950	Electrical safety
EN 55022 B	EMC/Radio disturbances
EN 50082-1	EMC Immunity
EN 61000-3-2, -3-3	Disturbances in supply systems

Features & Benefits

Processor	Feature	Benefit
	Intel Pentium®, 133 MHz	Provides high speed, true 64-bit processing power to cope with even the most advanced software applications and GUI's
	MMX™- technology	Improves the overall performance speed especially multimedia applications
	2.5-volt core technology	Reduces the amount of power consumed (longer battery operating) and reduces heat generated
	32 KB cache on chip	Speeds up processing of data between CPU and memory
	Integrated numeric co-processor	Faster processing of maths-intensive applications

Memory	Feature	Benefit
	Standard 16 MB EDO RAM	16 MB is the ideal amount of RAM for Windows to run powerful, memory intensive software and operating software at a comfortable speed
	Expandable up to 144 MB	Enough expansion room for the most demanding user
	Level 2 cache 256 KB	Ensures optimal memory access speed, allowing highest possible performance
	8 MB, 16 MB, 32 MB, 48 MB, or 128 MB memory modules (optional)	Faster manipulation of software and data stored in memory User can upgrade memory when need arises
	Shadow ROM	Enhances computer performance
	256 KB Flash EPROM	Flash EPROM's allow user to quickly update BIOS if necessary via software without returning machine to supplier

Removable internal FDD drive	Feature	Benefit
	3.5" diskette drive	Provides small, durable, industry-standard media for portable environment Easily removed to make way for the CD-ROM Reads from and writes to 3.5" 720 KB and 1.44 MB diskettes

Removable hard disk drives	Feature	Benefit
	1.44 billion byte removable hard disk	Provides large storage capacity for multiple programs and data
	= 13 ms average access time and 1:1 interleave	Fast access to programs and data stored on hard disk
	Low-power consumption modes	Maximise battery operating life

Satellite 230CX - Features and Benefits

	Feature	Benefit
Optional CD-ROM drive	12 mm high ten-speed CD-ROM drive	Ideal for video and sound files Reads from 8 cm and 12 cm CD-ROMs
	SelectBay	Store up to 640 MB on one disk Store an additional HDD or battery here to enlarge the data carrying capacity or increase battery life

	Feature	Benefit
Display	Advanced DSTN screens	Most modern colour flat screen technologies available
	Advanced DSTN display	Higher contrast, with less crosstalk Replacing conventional DSTN
	30.7 cm (12.1")	Faster response time than a conventional DSTN Comfortable working size Perfect for presentation graphics and all Windows-based applications

	Feature	Benefit
Graphics sub-system	Advanced video controller with SVGA resolutions	Practical for presentations on large monitors or data projectors or for work with design or DTP programs in the office or on the road
	Graphics adaptor	64 K colours at 800 x 600 (int.) and 16.7 mill colours at 800 x 600 (ext.)
	PCI local-bus	Speeds up the transfer of data to screen creating faster images and clearer video
	Video graphics accelerator	Ensures that graphics are generated quickly on screens to take advantage of Graphical User Interfaces such as Windows
	Dual display mode	Allows user to show data and presentations to colleagues or customers while controlling the procedure from internal screen and keyboard

	Feature	Benefit
Keyboard	Full-function keyboard	3 mm travel ensures faster, more comfortable data entry
	Cursor keys	Allow fast, convenient cursor positioning
	12 function keys and embedded keypad	Provide desktop keyboard functionality and greater productivity
	8 hot keys	Allow users to change set-up features and HotLock security direct from the keyboard
	Palm-rest for hands	Allows easy comfortable typing, even where there is no flat surface

Satellite 230CX - Features and Benefits

Pointing device

Feature	Benefit
Integrated MousePoint pointing device with buttons built into panel	Easy to use Precise control of cursor No protruding extras when travelling

Interfaces

Feature	Benefit
SVGA colour monitor port	Provides high-resolution (up to 1280 x 1024 dots) display of colour and graphics on external monitor
Parallel (ECP) port	Allows use of peripheral devices accepting parallel signals Permits easy data exchange with external storage devices Permits easy and rapid data exchange with external devices, (e.g. CD-ROMs and networks)
Fast infrared port	Wireless bi-directional transmission of files between many types of devices incl. PCs, printers, PDAs, modems, telephones. Low power consumption IrDA 1.1 compliant-industry standard
PS/2 keyboard/mouse port	Provides full keyboard versatility Allows use of 102-key keyboard when desired; increases productivity of operators familiar with 102-key keyboard Allows faster, more accurate entry of numerical data Allows use of desktop pointing devices such as a mouse with graphics and presentation software Frees serial port for use by another device Increased productivity of operators familiar with using a mouse
Audio in	Lets you play stereo sound from an external device
Microphone	Enables connection of a microphone for audio input
Headphone	Enables connection of a stereo headphone for audio output
Card Station III connector	Provides an instant connection to all devices hooked up to base
External FDD	Allows connection and use of a floppy and CD-ROM simultaneously
MIDI/Joystick connector (via Card Station)	Connect a MIDI device such as a synthesiser to compose music or connect a joystick for games
Universal Serial Bus	Allows to hook up to 127 peripheral devices to run simultaneously on the PC
Audio out (via Card Station)	Lets you out put stereo sound to an external device

Satellite 230CX - Features and Benefits

Expansion slots

Feature	Benefit
2 Type II or 1 Type III PC card slot	Provides mobile communication and expansion in a credit-card-sized format
CardBus and ZV Card ready	Allows access to many, high performance PC Card expansion devices Can be used for a wide range of communication and expansion modules such as modems, network adaptors, flash memory cards and removable hard disks Enhances high-end multimedia capability to the computer

Design

Feature	Benefit
A4 notebook design	Provides the speed, power and expandability of a high performance desktop in a lightweight, go-anywhere form
Rugged ABS casing	Tough enough to take the knocks of life on the road Colour is integrated into material so casing doesn't require painting and there is no danger of paint peeling or scratching

Power system

Feature	Benefit
Lightweight removable, rechargeable lithium-ion battery packs	Higher capacity than other battery types Environmentally friendly to dispose of Offers long battery life
Toshiba MaxTime™ Power Management (MTPM)	Allows user to specify when power-hungry components should be shut down to make most efficient use of available battery power
Advanced Power Management (APM)	Determines power needs by communicating with APM compatible software and passing on information to MTPM
Intelligent power supply with battery "gas gauge," invoked through pop-up menu	Provides easy access for monitoring battery life
System reset button	Allows rebooting without cycling power and without keyboard use (functions even when keyboard is locked)

Multiple security system

Feature	Benefit
System password security	Stops unauthorised access to data and software when power is switched on
HotLock security	Instant security with a screen blank and keyboard/mouse lock-out using the F1 hot key
Kensington MicroSaver provision	Hardware-based theft prevention. The computer can be physically secured to an immovable object

Special features

Feature	Benefit
Flash EPROM	Allows end user to easily update BIOS if needed
Built-in sound system	Provides audio support to visuals 16-bit Sound Blaster Pro compatible sound card Microphone & Speaker inside the computer
Plug & Play BIOS	Ready for Windows®95
AutoResume with AutoSave	Allows you to turn the notebook off without exiting from software application; powers-up where you left off. AutoSave provides security against possible data loss due to loss of power
Pop-up menu	Lets you change the configuration options and monitor the battery power level
Hot keys	Allow users to change various system configuration options any time, at the press of a key
LED icon bar	Users can see the status of the machine even with lid closed
Power button flap	Avoids the risk of accidentally turning the PC on or off

Toshiba support

Feature	Benefit
1-year International Warranty	Provides confidence that the notebook will give lasting, reliable performance throughout the world

Options

Feature	Benefit
8, 16, 32, 48 and 128 MB memory modules	Permits convenient, easy-to-install memory expansion for memory-intensive software applications
High-speed PC Card modem	Provides easy access to information world-wide
Extra battery pack	Increases battery life while on the road
Quick battery charger	One battery can be charged using the quick battery charger while the other is in use to extend overall operating time
Key caps for European languages	Users in virtually all countries work with most familiar set of keys
Card Station III	<p>Connects to the back of the series, providing Windows®95 Plug-and -Play connectivity</p> <p>Locks into place with special hooks: very stable</p> <p>Allows customers to leave everything connected in the office, ready for reconnection in one easy clip-on movement</p> <p>Includes a complete row of port options: USB x 2, PS/2 mouse, PS/2 keyboard, RGB, serial, parallel, external FDD, audio in/out, external microphone, headphone, Joystick/MIDI</p> <p>Two separate PC Card Type III slots</p> <p>Kensington Cable Lock Port (PC card slot security functionality is integrated)</p>
PC Card Ethernet adaptor	Lets you connect all your computers to one network

Options

Memory	PA Number	Article
	PA2038U	8 MB memory kit
	PA2039U	16 MB memory kit
	PA2040U	32 MB memory kit
	PA2041U	48 MB memory kit
	PA2042U	128 MB memory kit
Keyboard	PA Number	Article
	PA2217GR	Keycaps for German keyboard
	PA2217FR	Keycaps for French keyboard
	PA2217SC	Keycaps for Scandinavian keyboard
	PA2217SL	Keycaps for Swiss keyboard
	PA2217IT	Keycaps for Italian keyboard
	PA2217SP	Keycaps for Spanish keyboard
PA2217EN	Keycaps for English keyboard	
Power	PA Number	Article
	PA2450UE	Universal AC adaptor
	PA2478U	Lithium-ion battery pack
	PA2488U E	Battery charger
Expansion	PA Number	Article
	PA2717UE	Card Station III
	PA2610U	10-speed CD-ROM
	PA2451U	Secondary battery pack
	PA2609U	2.0 GB secondary HDD kit
Communications	PA Number	Article
	PA2827E	Modem kit
	PCE2-10BC	PC Card Ethernet adaptor