The Sonoma-powered IBM ThinkPad T43 Tested

Foreword

The Sonoma platform was introduced in January by a proud Intel. The platform boasts a 533FSB Pentium M processor and a 533FSB supporting 915 series chipset with Intel PRO/Wireless 2200BG or Intel PRO/Wireless 2915 ABG WLAN card. The IBM PC department (taken over by Lenovo) has taken the Sonoma and melded it into the new IBM ThinkPad T43.

The T43 2668 44U equipped with 14.1" XGA resolution display. Like the T42, the T43 is also offered with 14.1" SXGA and 15.1" SXGA+/UXGA resolution display editions. Here are the specs for the T43 2668 44U:

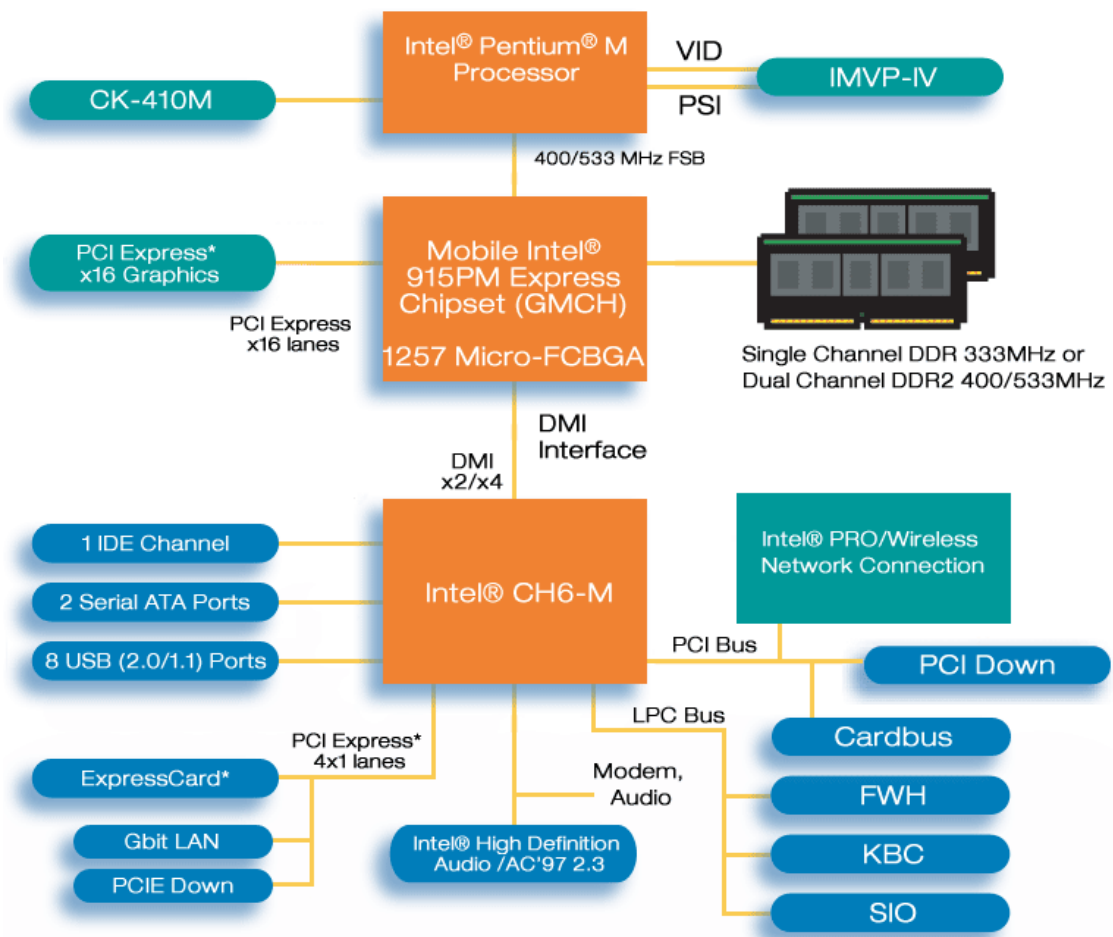|	
Processor	Pentium-M 750 (1.86GHz,533FSB,2MB L2 Cache)
Chipset	915PM+ICH6-M
Memory	512M DDR2 533(PC4200,
Graphics card	ATI MOBILITY RADEON X300(64MB,PCI Express x16)
Display	14.1" XGA(1024x768)
Sound card	AC'97
HDD	40GB(5400rpm,FUJITSU MHT2040AH)
Optical drive	HLDS 24x MAX DVD/CDRW COMBO
WLAN card	Intel PRO/Wireless 2200BG
Networking	Self-adjusting 10M/100M/1000M
Modem	56KBps V.92/V.90 MODEM
Dimensions	311cm x 255cm x 26.6mm
Battery	Standard 6 cell
Mass	2.22Kg

T43 Design

IBM's new T43 may feature a huge platform upgrade, but the outside is extremely familiar to IBM users and fans as it keeps the same fundamental design as the T40/T41/T42. In essence, it is created in classic T4X form.

As (perhaps) the last T4X model (according to the latest information, future T series model numbers will start with T50), the T43 is tracing the T2X route. During the T2X's heyday the only difference between the T20/T21/T22 models were the processor specs. The last T2X series product, the T23 also maintained the T2X exterior but featured a major chipset and processor upgrade (T23 featured 830MP chipset, Tualatin core Mobile Pentium III-M processor, PC-133 memory, while earlier T2X featured the 440BX chipset, Mobile Pentium III processor and PC-100 memory).

The previous T4X series notebooks feature the 855PM chipset, 400MHz FSB Pentium M processor (earlier models featured the Banias core, later ones the Dothan core), and DDR memory, while the T43, of course, adopts the Sonoma platform made up of 915PM chipset, 533FSB Pentium M processor, and DDR2 533 memory. Below is the 915PM chipset's block diagram:

Fingerprint Authentication

While product quality has always been a strongpoint of IBM products, IBM takes the effort to provide more to its customers. The ThinkPad series notebooks have featured a hardware-level data security chip (IBM Embedded Security Subsystem), dynamic hard drive protection (IBM

APS (Active Protection System)), and a full set of system security/software solutions.

All T43 models will contain the features and solutions mentioned above, as well as the Touchstrip integrated fingerprint authentication system on most models. The TouchStrip fingerprint authentication system was previously offered only in high-end T42 models.

When it's all said and done, what fingerprint authentication really offers is improved data security. Obviously, the other rather significant benefit is one less password to remember.

As we all know, a simpler password is easy to remember but also easy for someone to crack. On the flipside, a more complex password is harder to crack, but a lot more difficult to memorize. Fingerprint authentication puts all that in the past as each person's fingerprint is unique.

With TouchStrip all that is required of the user is a stress-less fingerprint scan (can be set for startup, Windows login, and screensaver) and voila, access to Windows is granted! That is, unless, the fingerprint offered does not correspond to the one stored.

Keyboard

Moving on to the T43's keyboard, the layout and feel are exactly what we are used to from the previous T4X series – pleasant comfort. Also provided are the Trackpoint and UltraNav (touchpad) pointing devices.

To the above left of the keyboard we have the blue Access IBM button, volume control buttons, and system power button just as they were laid out in earlier T4X notebooks. Future ThinkPads may not feature the Access IBM button, but a button simply labeled "Think" due to

the purchase of the IBM PC business by Lenovo.

To the bottom of the screen, the lay out of the status indicators remain the same as well. At the furthest right "T43" is printed.

Left of the T43

The rear battery position and the location of the hard disk drive/optical drive at the right frees up a lot of space on the left.
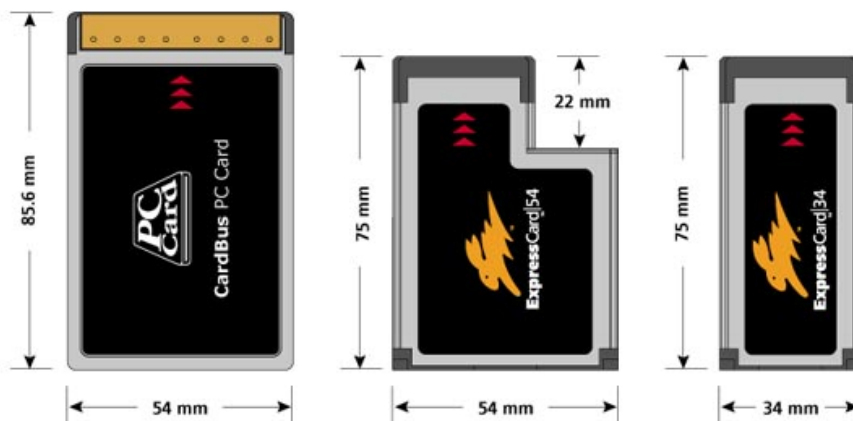

On the left we find the notebook lock, 2 USB 2.0 ports, 1 S-Video out port, 56kbps modem RJ11 port, 10/100/1000M Ethernet RJ45 port, earphone and microphone jacks, and CPU

cooling vents, and a group of expansion card slots.

Here too the T43 inherits the layout of the earlier T4X series, with the exception of the expansion card slots. Looking closely, we find tow blue eject levers, with the one at the bottom being the same square-ended one we are used to from earlier T4X series notebooks. Above it is an unfamiliar round-ended eject lever. To its left is the new PCI Express ExpressCard slot. Thanks to the PCI Express bus, the ExpressCard has much more bandwidth available to it, and is therefore able to transfer data at far higher rates vs. the PC Card.

The T43's ExpressCard slot is compatible with both ExpressCard/34 and ExpressCard/54 cards. The former is designed for ultra thin and light notebook computers. Below is a visual size comparison with the current mainstream PC Card.
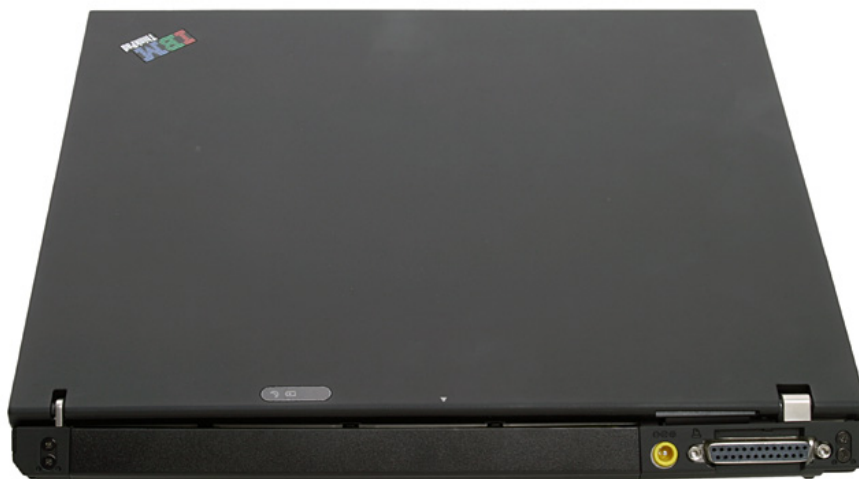

T43 Right and Rear

On the right side we find the optical disc drive and D-Sub port. To the left of the optical drive is

the system hard drive bay. Although the T43 adopts the SATA supporting 915PM chipset, the T43 still uses a common IDE ATA HDD as availability for 2.5" SATA drives is still limited.

The T43 2668 44U we are testing has a 40GB HDD capacity. The Fujitsu-supplied HDD (model number MHT2040AH) spins at 5400rpm next to the 9.5mm HLDS 24X DVD/CDRW Combo drive.

At the rear, like earlier T4X, the T43 is given the inverter connector and 25-pin parallel printer port.

Battery Life

On the battery end, the T43 2668 44U is given the same standard 6-cell battery that has graced earlier T4X models. A 9-cell battery is used in select high-end models, and is also available for optional purchase.

The inverter included is the ThinkPad T series' standard 4.5A unit.

Longevity for the 6-cell battery was found to be 163 minutes (2.7 hours) using MobileMark2002, with notebook settings of 50% brightness and power scheme set to portable/laptop.

As MobileMark2002 simulates typical usage, battery life can be expected to be lower than that which is claimed by the manufacturer. Still, 2.7 hours of unplugged time under normal usage is good news and rather acceptable for most users. To extend it even further, a user can reduce screen brightness and/or processor frequency, or purchase the optional 9-cell battery.

T43 Performance Benchmarking

What, in terms of performance, does the T43's Sonoma architecture bring to the table ? Let the benchmarking software give us the answer we crave. We use the Business Winstone 2004 and MCC Winstone 2004 titles as well as PCMark04 for overall performance, and 3DMark01, 03, and 05 for graphics performance. All tests are performed in Windows XP SP2 with desktop settings of 1024x768/32-bit. For all scores, higher is better.

Synthetics	T43
Business Winstone 2004	22.5
MCC Winstone 2004	25.6
PC MARK 04 Score	3577
CPU Score	3631
Memory Score	3362
Graphics Score	1314
HDD Score	3013

T43 Graphics Performance	T43
3DMark 01	7003
3DMark 03	1901
3DMark 05	712

On the overall, the Mobility Radeon X300 has about 75% of the Mobility Radeon 9600's performance. For a business laptop such as the T43, it's got 3D power in spades.

The T43 2668 44U is a middle-of-the-pack model. Some T43 models existing below it are equipped with the 915GM chipset with reduced graphics performance. For the T43p and other select models existing above the T43 2668 44U, IBM provides the professional 128MB ATI Mobility FireGL V3200 graphics card (PCI Express x16 interface).

Conclusion

The ThinkPad T43 is a pureblooded IBM product. Without considering the issue of cost, the T43 will without a doubt be on a business person's short list when choosing a notebook computer. For ThinkPad fans, the T43 2668 44U is a middle-level T43 series model with a full set of features. It represents a great choice for IBM fans looking at purchasing a T43 in the short term.