ASCENTIA™ M

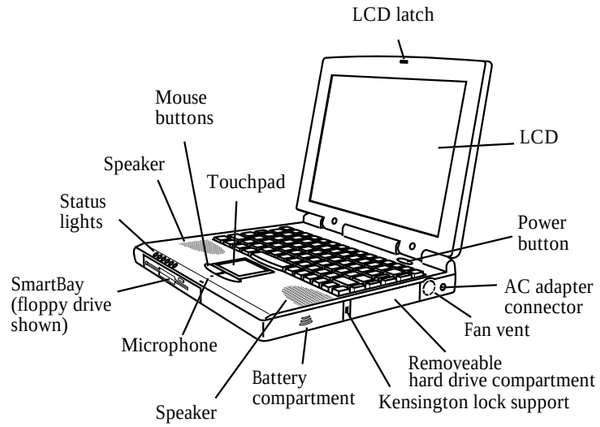
TECHNOLOGY OVERVIEW

AST COMPUTER

NOTEBOOKS & MICROSOFT WINDOWS NT 4.0 (THE SYSTEMSOFT SOLUTION)

The last six months have seen an increasing number of corporate customers migrating to Windows NT 4.0 as the standard platform for their operating system requirements. Although this has been a relatively straightforward transition for both desktop and server platforms, it has been a little more complex to put Windows NT onto notebooks. Why is this so? For one, the Windows NT operating system is not designed for the mobile platform. Microsoft's recommendation is that Windows 95 be designed as the mobile platform of choice. Indeed, in comparison with the Windows 3.x platform, Windows 95 does support a comprehensive array of mobile-centric features; including Plug-n-Play technology for the automatic configuration of add-in hardware and PC Cards, hot docking, dial up networking, support for Advanced Power Management, as well as built in support for IrDA and print spooling. When Windows 95 offers so much, why are an increasing number of corporate customers demanding mobile support for Windows NT 4.0, an operating system that is far from optimized for mobile computing?

There appears to be two major reasons for this increased demand for mobile Windows NT. Firstly, standardization. IT Managers are looking to standardize operating systems across all their installed base of PCs. Secondly, Windows NT provides the security, stability and manageability demanded by most large organizations. Added performance is another reason. A full 32-bit operating system running on 32 MB of system memory will be perceived as providing the user with optimized performance. What are the sacrifices? Until recently, to run Windows NT on a notebook, the user would have to compromise on Plug-n-Play and power management. There would also be severe limitation to the range and choice of supported PC Cards. Systemsoft Corporation have responded to this demand by developing system integration tools that provide Plug-n-Play and APM support for Windows NT 4.0. Systemsoft CardWizard™ for Windows NT automatically configures PC Cards, identifying and classifying them, assigning interrupts and memory resources and loading the proper drivers. CardWizard also supports hot swapping of modems as well as the hot insertion of LAN, SCSI and combo cards. PowerProfiler™ for Windows NT is a comprehensive, value-added power management solution for the Windows NT 4.0 operating system. It adds power-management capabilities (APM functions) to the operating system and enables users to create personalized power management settings through an easy-to-use Windows application. PowerProfiler enables users to extend battery life and increases the usability of Windows NT 4.0 as a platform for mobile computer use.



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ASCENTIA™ M

200 MHZ & 233 MHZ INTEL® PENTIUM® CPUS WITH MMX™ TECHNOLOGY

MMX is abbreviated from multimedia extensions. Basically, it is an Intel Pentium processor incorporating 57 new instructions that manipulate and enhance audio, video, graphics and image processing. The Ascentia M Series will be first to market with Intel's latest mobile CPUs, the 200 MHz and 233 MHz Intel Pentium processors with MMX technology. Incorporating Intel's latest 0.25 micron process technology and VRT (voltage reduced technology), these new CPUs will provide the mobile user with unbeatable system performance on a mobile platform. According to early Intel benchmarking, the new 200 MHz and 233 MHz Intel Pentium processors with MMX technology should provide over 20% more system performance than the equivalent 166 MHz version with no detrimental effect to system battery life. All Intel Pentium processors with MMX technology incorporate 32 KB of internal cache. On the Ascentia M Series this is complemented with an additional 512 KB of secondary cache, contributing to improved system performance by reducing average memory access time to recently used instructions and data.

INTEL 430TX PCI CHIPSET

The Ascentia M Series also features Intel's latest mobile PCI core logic chipset. The 430TX chipset has been developed to enable mobile PCs to match the overall performance of their desktop counterparts as well as being able to deliver USB (Universal Serial Bus) support. This chipset is also optimized for an Intel Pentium CPU with MMX technology, which will deftly bridge the gap between the multimedia performance of notebooks and desktops. In addition, the 430TX has Dynamic Power Management Architecture for the ultimate power savings in mobile applications and UltraDMA hard disk drive protocol for greater I/O throughput. This allows faster hard disk drive activity supported on a 4 GB drive.

LCDS & GRAPHICS 13.3" XGA LCD

With our unique relationship to Samsung Electronics Corporation, a world market leader in the design and supply of LCD panels, AST is able to bring to market the latest Super VGA and XGA TFT LCD technology. The Ascentia M Series incorporates a range of color LCD panels to meet corporate customer demands whether for a value system or for the latest and greatest technology. To accommodate the larger form factor of the 13.3" LCD there is a slight incremental addition to the length of a notebook PC. On the Ascentia M Series, this added space has been utilized by our system designers to provide the user with a more generous palm rest and "desktop equivalent" keycap form factor. This will make it more comfortable for the touch typist, as well as the everyday user.

AST® COMPUTER

GRAPHICS SUPPORT

The Ascentia M Series utilizes the outstanding performance of Cirrus Logic's latest 64-bit video accelerator, the CL-GD7556. The CL-GD7556 is a low power 3.3V, GUI accelerated XGA/SVGA controller. With its MVA (Motion Video™ Acceleration) features, the GD7556 leads the industry in multimedia video quality. Like its sister chip the GD7555, the CL-GD7556 will provide true-color, full motion video playback via DCI 1.x and Microsoft® Windows® 95. DirectDraw/DirectVideo support and accelerates MPEG-1 for Truemotion, Cinepak and Indeo codecs. The Ascentia M Series incorporates 2 MB of video RAM, supporting maximum external resolutions of 1280 x 1024 x 256 colors.

MPEG & ZOOMED VIDEO

MPEG is an acronym of Motions Pictures Expert Group. As such MPEG does not define a particular technology, but rather defines a 'standard' MPEG-1, -2, etc. MPEG is a compression format for video which enables high quality picture sequences to be stored on a hard drive. The more recent, and now more common version offers higher compression rates than its predecessor, the result of which is that more images can be stored in less space. Zoomed Video is effectively a way of bringing significant multimedia functionality to a notebook via a new interface on the PC CardBus slots. Basically the Zoomed Video or ZV port redefines some of the pins in the PC Card interface. These pins support the audio & video data streams and act as a simple dedicated bus to the system's graphics and audio controllers. A Zoomed Video card installed into one of the notebook's PC Card slots effectively performs as an MPEG-1 decoder. Decompressed video data is delivered back to the system's graphics controller. Using the ZV Port interface, the decompressed video stream is sent directly to the graphics controller and audio sound chip, and then on to the display screen and system speakers.

USB, IRDA, CARDBUS & ULTRADMA

USB or Universal Serial Bus is a completely new way of connecting peripherals to a PC. Developed by Intel, the USB port provides users with much easier Plug-n-Play connectivity and functionality, addresses some of the issues of peripheral compatibility, and ensures that the design of peripherals will be easier and more cost effective. Ultimately replacing traditional I/O ports, a USB provides virtually unlimited PC expansion with the ability to daisy-chain up to 127 devices without the need to reconfigure dip switches, software drivers or IRQ settings. USB utilizes a standard connector which allows users to install/remove a peripheral without having to open the PC. Better still, with Plug-n-Play support the user can both add and remove peripherals without having to reset or reboot the PC. USB has a much faster data throughput (12 Mbps) than standard I/Os. Expect future USB development in digital peripherals and integrated PC/telephony.

IrDA is short for Infrared Data Association, the committee responsible for defining the standard governing the infrared port on a notebook PC. To date there has been two standards set, the initial IrDA 1 & subsequent IrDA 2 standard (commonly referred to as FIR or fast infrared). The latter, more commonly found on today's PCs, supports data transfer rates of 4 Mbps, slower than the 10 Mbps of the more earlier Ethernet links, but much faster than the 115 Kbps of the earlier IrDA-1 standard. Please note that Windows NT® 4.0 configurations of the Ascentia M Series do not have built in support for infrared.

CardBus described in its simplest form is the 32-bit version of your regular PC Card (PCMCIA) slots. It is a 32-bit architecture operating at 33 MHz as opposed to the previous 16-bit architecture operating at 8 MHz. This is effectively 4X the speed with double the amount of bandwidth, thus offering the performance benefits of the desktop PCI bus in the PC Card form factor. In the latter half of 1997 and most certainly in 1998, expect to see more companies move to the performance benefits of fast Ethernet. To achieve this with PC Cards, they will require notebooks supporting CardBus technology. For those who wish to remain in the 16-bit world CardBus is backwards compatible.

Other advantages of CardBus include the following:

- Improved power consumption. CardBus draws 3.3v of power as opposed to PC card which draws 5v.
- It's bus mastering functionality relieves the CPU of much of the information processing requirements.
- It has much better memory access to help with multitasking applications. U-DMA, officially called UltraDMA-33. This is a protocol developed by Quantum Corporation and Intel to support burst mode transfer rates of 33.3 Mbps. This is twice as fast as the previous hard disk drive standard for PCs, and is necessary to take advantage of new, faster Ultra ATA disk drives.