The Information PC Platform

"VIA's vision is to improve society - to make Individuals as powerful as the Internet. We believe that the Internet will drive the Personal Computer into virtually every household on the planet. It is the catalyst that will place full function PCs within the reach of every person who wants one."

Wen-Chi Chen, President & CEO VIA Technologies, Inc.

Introduction

VIA's Information PC platform initiative bridges a vital gap. It will define a continuum of new platform options in the space between the Mainstream PC and the Information Appliance. In this market space, today's technology is more than adequate in terms of functionality and performance, but there still remains one overwhelming bottleneck to its universal adoption – Cost.

In a world where cellular phones are powerful enough to browse the Internet, it is becoming increasingly difficult to defend the idea that the PC requires 1GHz processors or faster to undertake comparably simple tasks such as word processing, calculating a spreadsheet, writing email, or web surfing. Without a doubt, high-end market segments will continue to demand ever-increasing performance, but the Information PC is for a different, broader market. The Information PC must deliver a unique balance of cost vs. performance to favor a much larger spectrum of end users.

At a time when the majority of the global population still doesn't have access to the vast resources of the Internet, the PC industry has a responsibility to develop more affordable solutions that will allow people to access the world of information, quickly, easily, and inexpensively. The Information PC is just such an initiative. It provides a new entry-level platform focused on delivering a powerful Internet and computing experience for everyone. It is optimized for mainstream Internet applications and services, such as email, web surfing, online shopping, MP3 music, research, chat, and investing. It will be used primarily as an information tool, but also delivers the functionality and performance necessary for all the most common productivity, education, and entertainment computing applications.

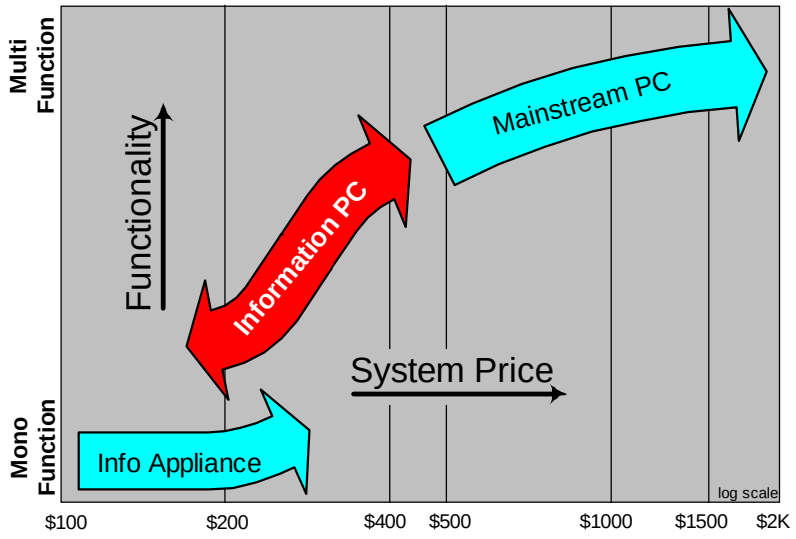
Information PC Platform Philosophy

The Information PC differs from an Information Appliance, and avoids the pitfalls of the previous generation of failed initiatives such as the Network Computer. The Information PC strategy is not an attempt to leverage an over-integrated SOC (system on a chip) into the market. The platform concept is not linked to any single

hardware or software implementation, and is able to benefit equally from modularity as well as integration at the hardware and software level.

The Information PC is small and inexpensive, spanning price points from US$199 to US$499. It is fully compatible with standard x86 hardware and software, and delivers a broad range of functionality built on today's technology and mainstream computing infrastructure. It sacrifices none of the fundamental strengths of the PC platform – namely, its connectability, its software resources, its flexibility, its upgradability, and its open architecture. It will also carry a generous feature set, familiar brand names, mainstream processor clock speeds, and performance appropriate to its applications.

The Information PC Cost Performance Continuum



This diagram depicts the price vs functionality relationship between the Mainstream PC, the Information PC, and the Information Appliance. At the high end, the Mainstream PC spans a very wide price range, but has only minor differentiation in functionality within its product range. In the larger sense, there are not many mainstream capabilities or functions of a $2000 PC that cannot also be accomplished on a $500 PC.

At the bottom of the chart lies the Information Appliance, which is by definition 'mono-function'. The fundamental concept of an 'appliance' is that it performs one task and it does so without significant maintenance or user interface complexities. Different appliances will be specialized for different tasks or environments. These appliances might range in price from under $100 to around $250. At the higher end of this spectrum, it is reasonable to assume that some of these appliances might attempt to take on slightly expanded functionality.

The Information PC bridges the gap. At the top of its range, the Information PC looks remarkably like a mainstream Windows® PC. At the bottom end of its range, this same PC-like platform might be stripped down to a diskless box with just a processor, chip set with integrated graphics and audio, memory, and modem - combined with a browser in firmware to create a $199 starter solution. It would also feature USB and, eventually, 1394 ports to allow future expansion to a full-function PC system.

One of the key advantages of the Information PC is that it provides a very flexible platform. It can take many different physical forms and integrate a wide variety of feature sets based on its intended environment, cost goals, and user requirements. At the same time, the Information PC allows users to carry out all of the Web-based functions of the low-end Internet Appliance while enabling them to accomplish almost a complete range of common computing tasks, as summarized in the table below.

Function	Mainstream PC	Information PC	Information Appliance
Internet Applications			
Internet Browsing	Y	Y	Web Pad, Mobile Phone, Set Top Box
Email	Y	Y	
Hosted Web Services & Applications*	Y	Y	
Personal Productivity Applications			
Word Processing	Y	Y	(unlikely)
Spreadsheets	Y	Y	
Presentations	Y	Y	
Desktop Publishing	Y	Y	
Entertainment & Educational Applications			
MP3 Music	Y	Y	MP3 Player
Multimedia Games & Entertainment Apps	Y	Y	Game Console
Multimedia, Education Applications	Y	Y	
Digital Photography	Y	Y	
Extreme 3D Games	Y		Game Console
Digital Video Editing	Y		
Video Streaming	Y		

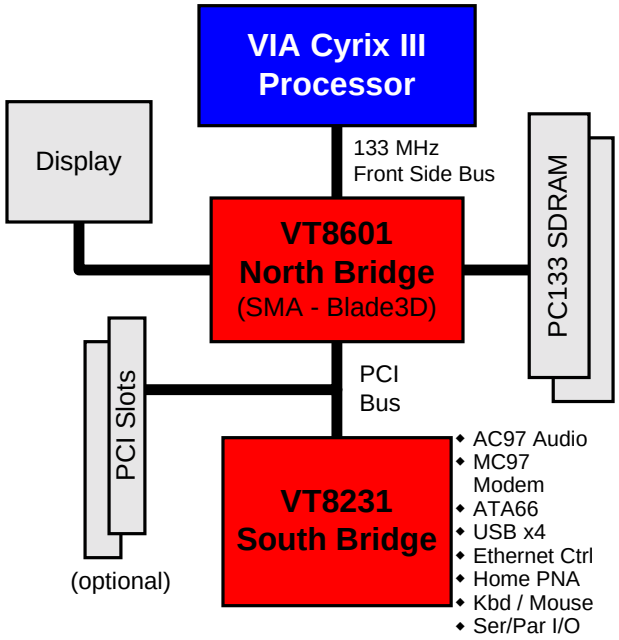
*For example, stock trading, calendaring & scheduling, etc.

Information PC Reference Platform

The Information PC Platform should be comprised of industry standard components that deliver the optimum balance between cost, functionality and performance. It should have a low-cost processor running at clock speeds that are comparable to mainstream PCs, and with power consumption rates low enough to enable fanless designs in small footprint form factors.

With basic 3D acceleration capabilities and AC-97 audio, the Information PC should run many popular games and multimedia applications at acceptable levels of performance. It should also feature USB and 1394 ports for easy peripheral expansion, while offering basic or advanced communications options via ACR (Advanced Communications Riser) or AMR (Advanced Modem Riser). Internal PCI expansion slots and TV output capabilities would also be useful options. The lowest cost systems may be diskless with applications in flash memory, while full-featured platforms would include internal drives and full OS support.

The diagram below represents VIA's initial reference platform for a full-featured Information PC. It is based on a combination of the new VIA Cyrix® III processor and the highly integrated VIA Apollo PM601 SMA chipset featuring a built-in Trident Blade3D graphics controller and support for PC133 SDRAM. The paired VT8231 South Bridge chip features AC-97 audio, MC-97 modem support, Super I/O, an integrated home phone line and 10/100 compatible Ethernet controller, hardware monitoring capabilities, plus support for four USB ports, ATA-66, and advanced power management.



VIA will further expand the range of Information PC platforms with higher speed grades of the VIA Cyrix® III processor and its forthcoming fully integrated Matthew processor for the most price-sensitive solutions. As an open industry platform, the Information PC can also support low-cost processors from both Intel® and AMD, further extending OEM options in terms of cost, mobility, size and performance.

Information PC Market Opportunities

The Information PC platform represents an exciting opportunity for PC OEMs to reduce costs, increase profit potential, and expand the overall size of the market. It magnifies the contrast between the business PC and consumer PC, protecting and extending both market segments. By leading the trend to price points below $400, the Information PC will enable OEMs to generate high growth rates by opening up previously untapped markets inspired by the global penetration of the Internet. In the US alone, online user population is expected to double to 210 million by 2005[1], and the number of Internet users in regions such as Western Europe and the Asia Pacific is projected to grow at even faster rates.

In addition to budget conscious first-time consumer buyers and purchasers of additional PCs for the household, other key markets for the Information PC will be schools, government organizations, affiliate marketing programs with banks and ISPs etc, and corporate free employee PC programs. The Information PC will also be targeted at developing countries in the Asia Pacific, Eastern Europe, the Middle East, South America, and Africa.

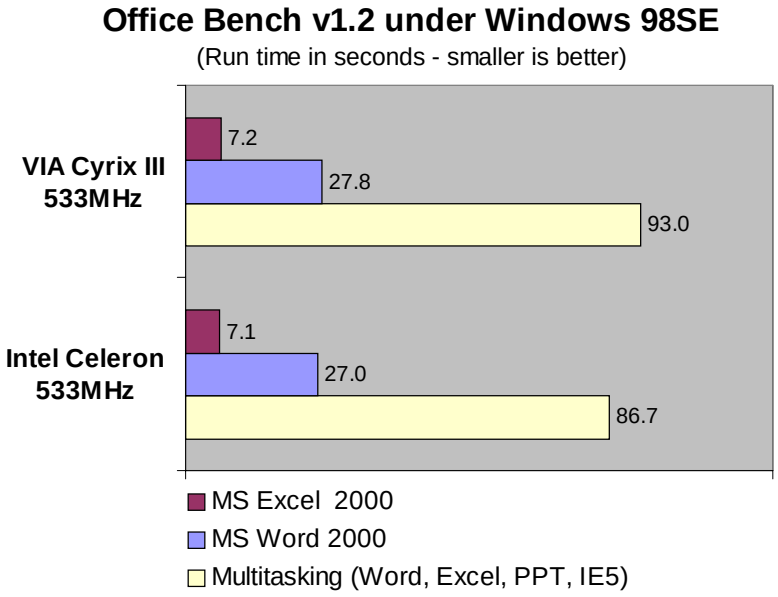
VIA Cyrix® III Processor Architecture Overview & Performance Brief

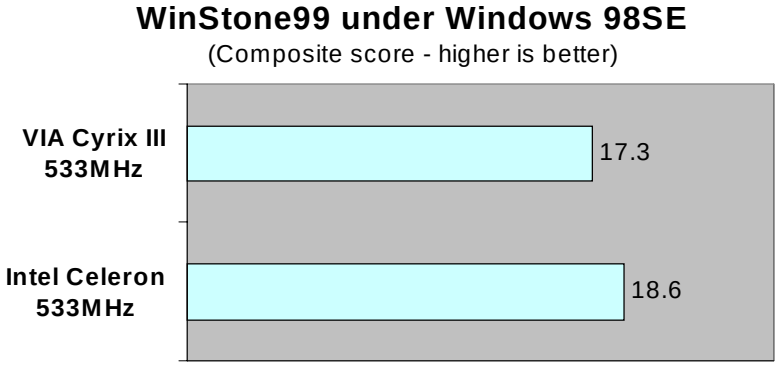
The new VIA Cyrix® III processor is at the heart of VIA's Information PC platform solution, which will accelerate growth in this vast new market segment. Designed by VIA's Centaur Team located in Austin, Texas, it is a Socket 370 processor with a highly-efficient internal architecture optimized to achieve competitive clock speeds and application performance with a significantly smaller die size and lower power consumption than other processors. The processor also builds on the legacy of the Cyrix brand name, which in a previous incarnation was the primary catalyst in the Sub $1K PC revolution.

The VIA Cyrix® III processor architecture is optimized for cost, while retaining efficient execution of mainstream x86 software applications. Its internal 12 stage instruction pipeline and 128KB integrated Level 1 cache are tuned to perform well on the type of code most frequently seen in today's mainstream software programs such as Microsoft Office, Internet Explorer, and similar applications.

To measure the performance of the VIA Cyrix® III processor running these applications, VIA selected WinStone 99 from Ziff Davis and Office Bench from CSA Research as its benchmark testing programs. Both of these independent benchmarks are built on user interaction scripts that closely mimic real life application usage patterns of popular software and are therefore the most objective means of testing VIA Cyrix® III processor performance.

Using Office Bench and Winstone, we compared the application performance difference between the VIA Cyrix® III processor and the Intel® Celeron™ processor, both running at 533MHz. VIA's Information PC platform was used for both processors, configured with 64MB of PC133 SDRAM, and a 10GB ATA66 Hard Disk under Windows 98 SE.



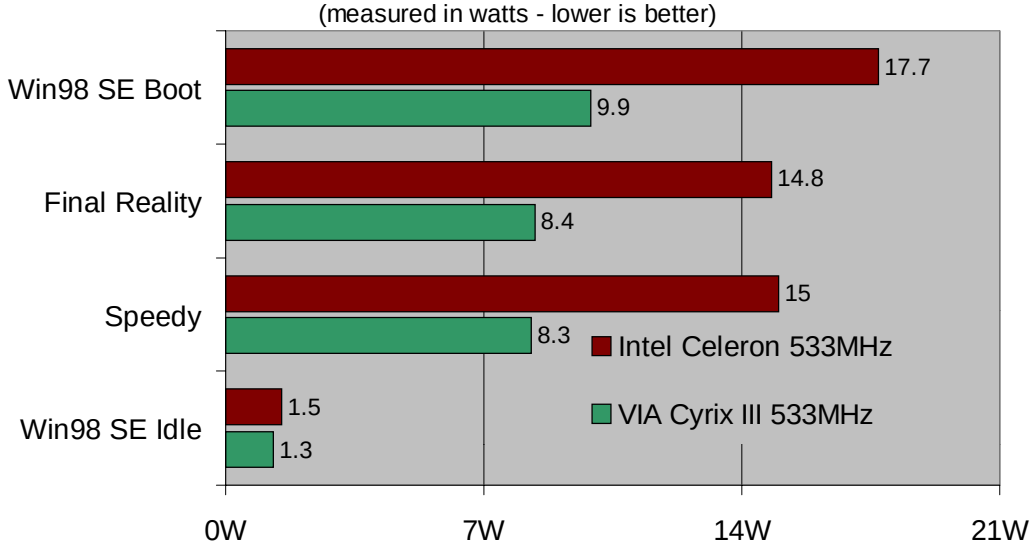


Under both test scenarios, these results indicate that the system level performance of the Intel® Celeron™ and VIA Cyrix® III processors is comparable on the Information PC platform running all the most common productivity and Internet applications. In fact, it differs by no more than a single digit percentage in each test shown here.

To compare the power consumption of the VIA Cyrix® III and Intel® Celeron™ processors, we ran a full suite of tests on the system in various operating states, as summarized in the chart below.

Processor Power Consumption VIA Cyrix III vs Intel Celeron

(measured in watts - lower is better)



The results show that the VIA Cyrix® III delivers significantly better power consumption than the Intel® Celeron™ processor, making it a more versatile solution for the type of small form factors that will be commonly used in the Information PC platform. With its lower heat dissipation, the VIA Cyrix® III processor also enables OEM to save costs and deliver additional innovation through the development of fanless, noise-free, always-on Information PC designs.

Summary

Despite the continued explosive growth of the Internet, household PC adoption rates even in the most developed markets such as the US have yet to rise much above 50%.

With the Information PC initiative, VIA is combining its chipset, graphics, and processor technologies with the unique efficiencies of its fabless business model to provide a flexible, low-cost platform that will enable OEMs to build a new breed of PCs at previously unachievable price points. That will not only spur the development of an exciting new market segment, it will also bring the Internet within closer reach of millions of new users.

Appendix 1

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Sources

[1] The Next Wave of US Online Users: Forecast & Analysis, 2000 - 2004, IDC