

The New VIA C3 Processor

Powering the New
Value Internet Architecture

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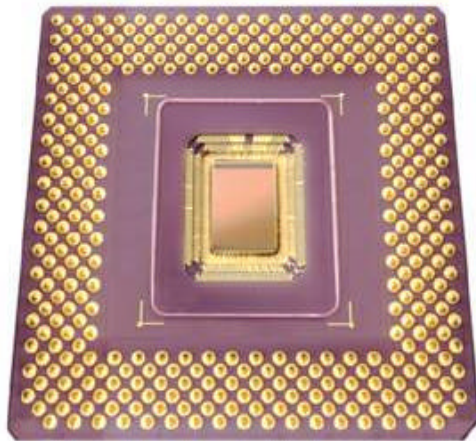
1. Introduction

1.1 Extending the Footprint of the PC to the New Value Internet Architecture

The introduction of the new VIA C3 processor marks an important milestone in the creation of a new Value Internet Architecture that extends the footprint of the PC to an exciting new generation of innovative, energy efficient, small form factor Value PCs, Information PCs, notebooks, and Digital PC Appliances that deliver mainstream computing and Internet capabilities at compelling new price points.

The first processor on the market to be built using a leading edge 0.15 micron manufacturing process, the new VIA C3 processor sets the new de facto standard for affordable low power, high-performance x86 processors. Integrating a total of 192KB full-speed cache on the world's smallest x86 processor die measuring only 52mm², it combines robust Internet and mainstream software application performance with exceptionally low power consumption and heat dissipation properties.

Figure 1 New VIA C3 processor Cache Rear View



The new VIA C3 integrates 192KB full speed cache in the world's smallest x86 die of 52mm².

With its superior thermal management properties and robust application performance, the new VIA C3 processor gives OEMs and system integrators the freedom to integrate advanced computing, multimedia, and communications features into innovative space saving system designs for a wide variety of corporate, home, educational, and mobile environments.

When coupled with one of VIA's growing range of integrated core logic chipsets such as the VIA Apollo PLE133, ProSavage™ PM133, or the ProSavage™ Twister, the processor also provides a highly flexible and cost effective standardized platform that OEMs and system integrators can

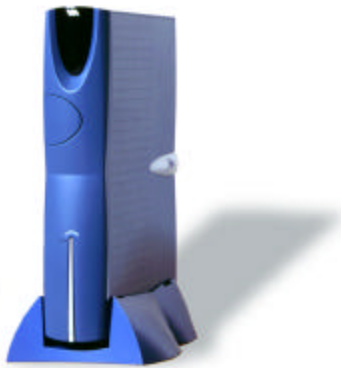
utilize across multiple Value PC, Information PC, and Digital PC Appliance product lines. In addition to minimizing product design costs, this also dramatically reduces product development cycles.

Figure 2 Information PC



When integrated into the new VIA Information PC Reference Design based on the new ultra compact ITX motherboard form factor, the new VIA C3 processor provides OEMs and system integrators with a flexible and attractive platform for building entry level systems at compelling consumer electronics price points.

Figure 3 Set Top Box



The new VIA C3 processor leverages the unparalleled flexibility, functionality, and performance of the x86 architecture to power a new generation of Digital PC Appliances such as the new VIA Set Top Box Reference Design. This provides a small and affordable platform for devices that convert a television into interactive multimedia box capable of surfing the web and running common productivity applications.

2. New VIA C3[®] Processor

2.1 Processor Overview

The new VIA C3 processor was developed by the VIA Centaur processor design team located in Austin, Texas. Previously known by its Samuel2 code name, the new VIA C3 processor is manufactured using a 0.15 micron manufacturing process and features the world's smallest x86 processor die of only 52mm².

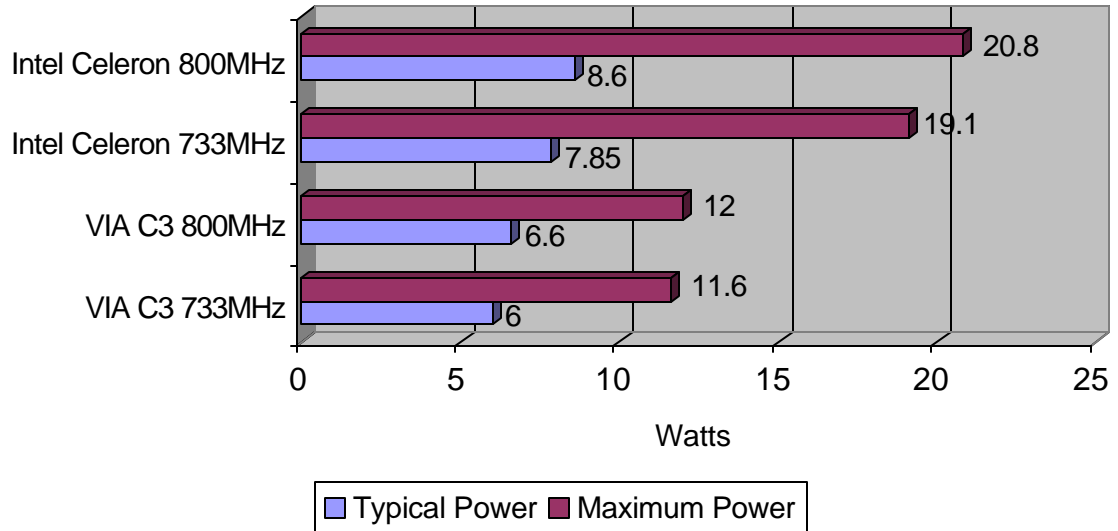
Initially available at speeds starting at 733MHz, the new VIA C3 integrates 128KB Level 1 and 64KB Level 2 Cache and also features support for a high-speed 133MHz Front Side Bus and the 3DNow! and MMX[™] multimedia instruction sets. The processor is fully plug-in compatible with the standard Socket 370 infrastructure, and runs a complete range of Microsoft[®] Windows[®] and other popular x86 operating systems and software programs, as well as all the latest Internet applications and plug-ins.

2.2 Ultra Low Power Consumption

With its small die size and efficient architectural design, the new VIA C3 processor delivers exceptionally low levels of power consumption, providing designers with full flexibility and freedom in developing low profile and small form factor chassis designs for both PCs and Digital PC Appliances.

As shown in Table 1, the new VIA C3 processor delivers up to 25% lower power consumption than the Intel[®] Celeron[™] processor when running mainstream productivity applications in a standard Value PC configuration. This not only makes it possible for OEMs and System Integrators to save costs by eliminating the need for a processor fan, it also gives them the opportunity to differentiate their products in the market by creating innovative, ergonomically-friendly Silent PC designs.

Table 1
 VIA C3 & Intel Celeron Processor Value PC
 Power Consumption Comparison



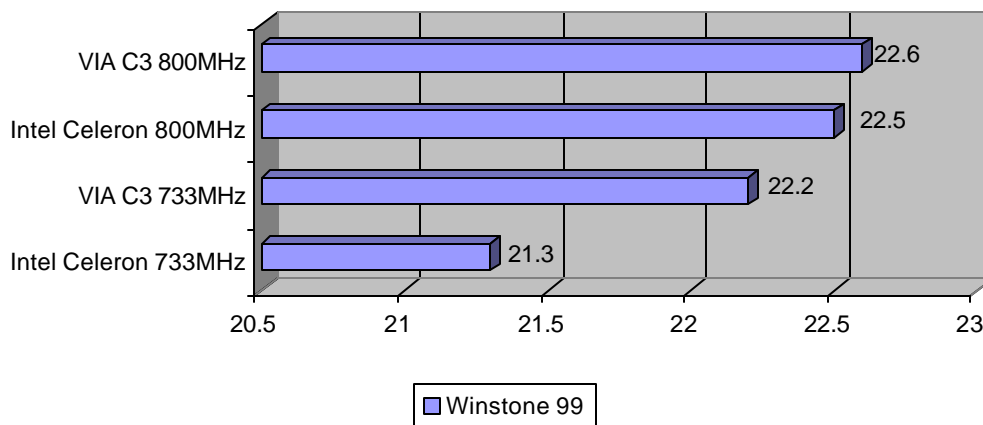
Value PC Configuration: VIA C3® /Intel Celeron™ processor; VIA PLE133 motherboard; On Chip 2D/3D AGP VGA, 8MB Shared Memory, 1024x768x16 bit resolution; 64MB PC133 SDRAM; 13.5GB UDMA66 HDD; Windows 98 SE.

Note: Typical Power is the average power consumed when running Winstone® 99. Maximum Power is highest wattage possible when executing the worst case instruction sequence designed to consume the most power.

2.3 Robust Application & Internet Performance

Even with its lower power consumption, the new VIA C3 processor delivers robust levels of performance for mainstream productivity software programs and Internet applications run under a Microsoft® Windows® environment. Table 2 compares the performance of the 733MHz and 800MHz versions of the new VIA C3 and Intel Celeron™ processors in a standard Value PC configuration using the industry standard Winstone 99 benchmark.

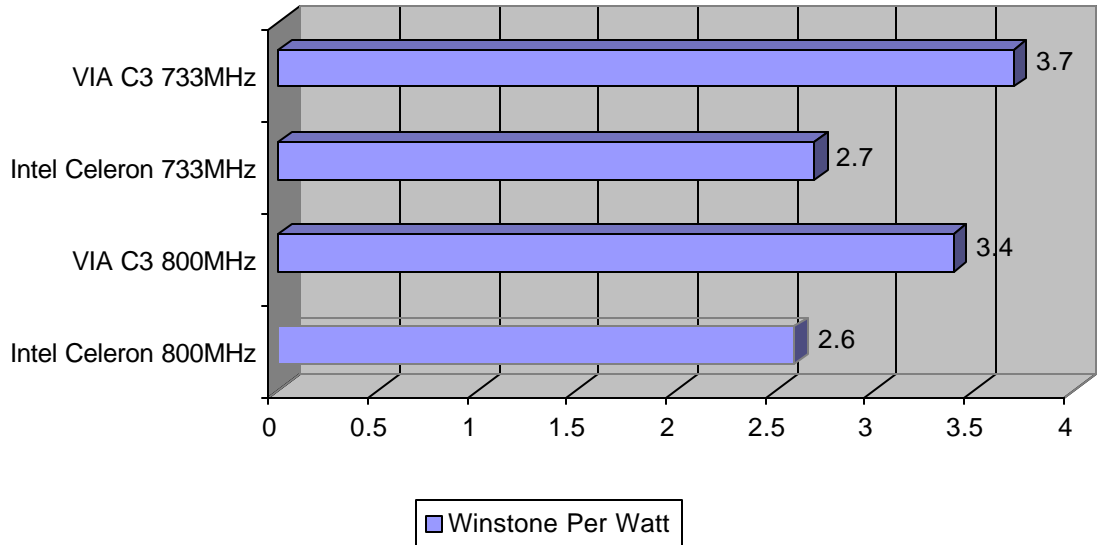
Table 2 VIA C3 & Intel Celeron Processor Winstone 99 Performance Comparison



Value PC Configuration: VIA C3/Intel Celeron™ processor; VIA PLE133 motherboard; On Chip 2D/3D AGP VGA, 8MB Shared Memory, 1024x768x16 bit resolution; 64MB PC133 SDRAM; 13.5GB UDMA66 HDD; Windows 98 SE.

Lower power consumption combined with robust application performance under Winstone 99 gives the new VIA C3 processor the highest power to performance ratio on the market. As shown in Table 3, the new VIA C3 delivers more “Winstone Per Watt” than the Intel® Celeron™ processor in a standard Value PC configuration. These figures were calculated by dividing the Winstone 99 score of each configuration with the typical power consumption.

Table 3 VIA C3 & Intel Celeron Processor "Winstone Per Watt" Comparison



Value PC Configuration: VIA C3 /Intel Celeron™ processor; VIA PLE133 motherboard; On Chip 2D/3D AGP VGA, 8MB Shared Memory, 1024x768x16 bit resolution; 64MB PC133 SDRAM; 13.5GB UDMA66 HDD; Windows 98 SE.

2.4 Plug-in Socket 370 Compatibility

Fully plug-in compatible with Socket 370, the new VIA C3 processor leverages the flexibility, cost-effectiveness, and rich variety of feature sets offered by this industry-standard architecture. The new VIA C3 processor is supported by a wide variety of motherboards from all the world's leading vendors, and its plug-in compatibility enables OEMs and system integrators to further reduce costs by using a single mainboard for multiple configurations and price points.

3.) Conclusions

3.1) Powering the New Value Internet Architecture

The first processor in the world to be manufactured using a 0.15 micron process, the new VIA C3 delivers a unique combination of ultra low power consumption and robust application performance for powering an exciting new generation of Value PC, Information PC, and Digital PC Appliances.

Together with the growing range of low power integrated VIA Apollo chipsets and new innovations such as the ultra compact ITX motherboard form factor, the new VIA C3 processor forms an integral part of the VIA Value Internet Architecture platform. This platform not only provides exciting opportunities for OEMs and system integrators to extend their PC product lines to new high potential market segments; but will also lead to a new wave of innovation as companies develop smaller, more energy efficient, and more ergonomically friendly system designs that combine mainstream computing capabilities with affordable and convenient access to the Internet.