1   VIA CLE266

This product is available fully ROHS-compliant.

Combining a fully integrated video processing feature set, 2D/3D graphics engine and ultra efficient VIA DDR memory controller, the VIA CLE266 Chipset is designed to enable high quality digital video streaming and digital video playback in a new generation of fanless, small form factor PCs and IA devices.

The VIA CLE266 chipset is the product of a new vision, blending the power of VIA DDR Chipset technology with the features required for a complete range of digital video functions. These include MPEG-2 decoding and video scaling for high quality digital video acceleration and an integrated 128-bit 2D and 64-bit 3D graphics engine with internal AGP 8X and Alpha Blending for multimedia and gaming applications. Supplied with 2.1GB per second of bandwidth from the ultra-fast DDR memory subsystem, the VIA CLE266 enables real world performance in key applications like video streaming or digital video playback that equals that of the most powerful PC systems in production today, while operating as part of a fanless power efficient, low cost device. In addition the CLE266 supports CRT, LCD or TV dual display technology, two Video Capture ports and Picture in Picture functionality for multi-channel capability.

The VIA CLE266 North Bridge is connected to the very latest in South Bridge technology, the VIA VT8235 through a 4X V-Link connection to the North Bridge transferring data at 266MB/s, twice the speed of the conventional PCI bus. This enables CLE266 based systems and devices to take advantage of the integrated support for 6 USB 2.0 ports with 40 times more bandwidth than USB 1.1, as well as ATA-133, the fastest available IDE interface. Additional features include integrated VIA MAC for 10/100Mbps Ethernet, integrated PCI support, 6 Channel Surround Sound AC-97 audio interface and MC-97 modem.

1.1   Features of VIA CLE266

Features North Bridge	CLE266
Processor Support	VIA Eden(TM), VIA Antaur(TM), VIA C3(TM)
Front Side Bus	66/100/133MHz
Memory Channel	Single Channel
Memory Support	100/133MHz DDR or SDR
Max Memory	2.0GB
AGP Support	AGP 8X (Internal bus, no external port)
Memory Type	DDR200/266 (PC1600/2100) or PC100/133 SDRAM
North/South Bridge Link	V-link 266MB/s
Graphics Core	VIA UniChrome(TM) Pro
Hardware Video Acceleration	MPEG-2
Dual Monitor Support	2 Contents, 2 Refresh Rates, 2 Resolutions
2D Engine	128 Bit
3D Engine	1 Pipe, 2 Texture, dedicated
Video Support	2 video stream + Alpha Channel
Video Capture Ports	1 x VIP 2.0, 1 x BT.656

1.2 Benefits of VIA CLE266
1.2.1 A Leading Edge Digital Video Experience
The integrated VIA 2D/3D 128-bit graphics engine with internal AGP 8X possesses every feature required for digital video. Hardware MPEG-2 decoding delivers must have applications like digital video playback and and video streaming at an equivalent level to today's multi-gigahertz, discrete graphics PC systems, at a fraction of the cost.

1.2.2 High Speed DDR Memory Subsystem
The integrated graphics engine and Socket-370 processor benefit from the 2.1GB/sec of bandwidth available from the DDR memory subsystem ensuring system performance is maximized across the whole spectrum of applications.
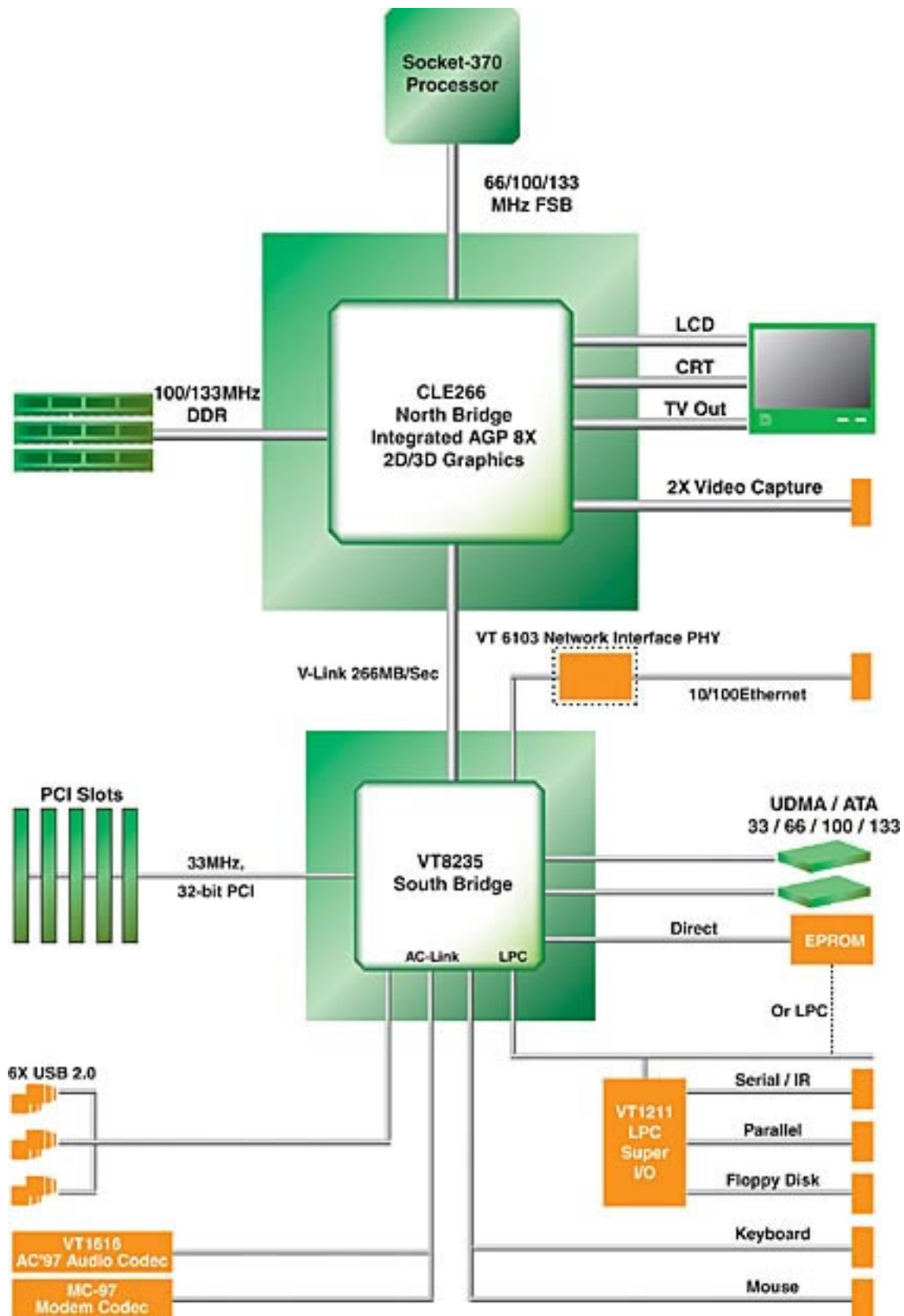
1.2.3 Designed for Fanless, Low Power Solutions
The CLE266 has been designed from the ground up to minimize power usage and heat dissipation. The low transistor count in the graphics core and low voltage DDR memory enable passive cooling solutions, while the CLE266 is fully compatible with the latest mobile power management specifications.

1.2.4 Market Leading South Bridge Technology
The VT8235 South Bridge possesses a complete suite of the very latest I/O and communication technologies including USB2.0 enabling peripheral connectivity 40 times faster than in previous generation systems and ATA-133, the fastest IDE interface currently available.

1.3 Key Features
- Supports all VIA processors, Intel® Pentium® III and Intel® Celeron(TM) Socket 370 processors
- 66/100/133MHz FSB settings
- 100/133MHz DDR/SDR Memory bus settings
- Support for Integrated VIA AGP 8X 2D/3D Graphics
- Supports up to 2.0GB DDR200/266 or PC100/133 SDRAM
- V-Link 266MB/s high bandwidth North/South Bridge interconnect
- Integrated 6 channel Surround Sound AC-97 Audio Interface
- Integrated MC-97 Modem
- Integrated 10/100 Ethernet MAC
- Support for ATA 33/66/100/133
- Support for USB 2.0, 6 USB ports, UHCI compliant
- Advanced power management capabilities including ACPI/OnNow
- 548-pin BGA VT8623 North Bridge
- 487-pin BGA VT8235 South Bridge

Socket-370
Processor

66/100/133
MHz FSB

LCD
CRT
TV Out

CLE266
North Bridge
Integrated AGP 8X
2D/3D Graphics

100/133MHz
DDR

2X Video Capture

VT 6103 Network Interface PHY

V-Link 266MB/Sec

10/100Ethernet

PCI Slots

33MHz,
32-bit PCI

VT8235
South Bridge

UDMA / ATA
33 / 66 / 100 / 133

Direct

EPROM

AC-Link   LPC

Or LPC

6X USB 2.0

Serial / IR

VT1211
LPC
Super
I/O

Parallel

Floppy Disk

VT1616
AC'97 Audio Codec

Keyboard

MC-97
Modem Codec

Mouse

2   VIA VT8235

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The new VIA VT8235 South Bridge has been designed from the ground up to incorporate the essential features of the 'Total Connectivity' era. First to market innovations include 8X V-Link interface, integrated support for six USB 2.0 ports for peripheral connectivity 40 times faster than USB 1.1, and ATA-133 support, the fastest parallel IDE interface available. Additional features integrated into the South Bridge include a VIA 10/100Mbps Ethernet MAC, integrated PCI support, 6 Channel Surround Sound AC-97 audio, and MC-97 modem support.

2.1   Features and Benefits

2.1.1   8X V-Link

VIA developed V-Link technology to remove the PCI bus bottleneck in inter-chip communication. In less advanced chipsets, the PCI bus is responsible for connecting both the North and South Bridge, as well as providing a bus for most add-in peripherals. VIA 8X V-Link technology provides a dedicated 133MHz quad-pumped bus between the North and South Bridge, freeing up the PCI bus to deal strictly with peripheral devices and providing aggregate transfer of 533MB/s, four times the bandwidth of the original PCI interconnect.

2.1.2   USB 2.0: Empowering Peripherals Like Never Before

VIA has long recognized the potential of USB as a universal interconnect system, designing USB 1.1 support into our award-winning core logic chipsets well in advance of the proliferation of USB-enabled PC peripherals. Following the widespread adoption of USB 1.1, VIA now sees the drive to new industry standard USB 2.0 as a natural evolution, meeting the greater bandwidth demands of today's PC peripherals and applications, from higher resolution video to fast storage unit access, while being backwards compatible with existing peripherals.

As a member of the USB Implementers Forum, VIA is helping to facilitate an industry-wide move towards adoption of the latest USB specifications, by integrating full support for the high bandwidth technology into upcoming core logic chipsets, and by expanding our product lineup of Hi-Speed USB 2.0 discrete chips.

2.1.3   ATA-133

ATA-133 FastDrive(TM) is the fastest IDE standard currently available on the market, and allows each IDE controller to burst up to 133MB/s. This offers a significant performance improvement in data intensive professional applications and in consumer applications including gaming, audio and video. The faster interface will also save time when booting up the system and opening new applications. In the VIA VT8235 South Bridge, each controller also supports up to two devices, for a total of four ATA-133 capable drives. In multiple configurations including RAID, the performance benefits of the faster interface are particularly apparent.

2.1.4   Integrated Surround Sound Support

Supporting the AC'97 version 2.2 standard, the VIA VT8235 when connected to a compatible codec can support 6-channel audio for a complete surround sound listening experience. In addition, the interface can support S/PDIF digital outputs and optional features such as tone and loudness control, and 3D stereo enhancement.