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VT6122 Gigabit Ethernet Controller

Velocity VT6122 Gigabit Ethernet Controller



A single chip Gigabit Ethernet Controller solution integrating top performance in a small low power package, customized for the requirements of the LAN on Motherboard market.

The VIA Velocity™ VT6122 Gigabit Ethernet controller enables leading-edge performance in a small 14x14mm 128-pin LQFP package, optimized for 32-bit PCI applications in space-constrained systems. Integrating a feature laden MAC and Cicada's patented SimpliPHY™ transceiver, the VT6122 Controller is optimized for space constrained systems with a low power, low profile design.

Supporting 10/100/1000 Mbps triple-speed and full/half-duplex capability at all speeds, the integrated Cicada PHY is fully compliant to IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX), and 802.3ab (1000BASE-T) standards. With Cicada's proven SimpliPHY design, VIA Networking's Velocity controllers feature leading narrow band noise tolerance that delivers superior performance for real world PCBs and cables.

To minimize host-side CPU utilization, VIA Velocity Gigabit Ethernet Controllers adopt an adaptive interrupt scheme to reduce interrupts made to the processor, and maximize the use of packet bursts for efficient PCI bandwidth usage. The Velocity controllers can further offload tasks from the host CPU to improve the overall system performance with TCP/UDP/IP checksum, and TCP segmentation offloading.



To maximize network management features for the user, the VIA VT6120 includes sophisticated GigaCheck™ link management software that makes available comprehensive cable diagnostics, operating analysis, and status information greatly simplifying network management and troubleshooting.

To reduce system complexity and cost VIA Networking's Velocity Gigabit Ethernet controllers utilize a single 3.3V power supply, and also support advanced power management features.

Applications

The Velocity VT6122 controller is optimized for 32-bit PCI client-end applications. Its small form

implementation. Furthermore, to allow a flexible Gigabit Ethernet (10/100/1000-Mbps) or Fast Ethernet (10/100-Mbps) implementations on the same board, VIA Networking offers a number of configuration options integrating our wide range of Ethernet IC options.

Benefits of VIA Velocity VT6122

Highly Integrated Solution: 10/100/1000 single chip solution that includes checksum offloading, jumbo frame support, a deep on-chip Tx/Rx packet buffer, and a full suite of management features including compliance with IEEE 802.3ab, 802.3x, 802.p, 802.1Q standards.

Integrated SimpliPHY™ Technology: Cicada's integrated SimpliPHY technology ensures outstanding narrow band noise tolerance for long distance connections. Ideal for networks where poor connections or substandard cables are in operation.

Low Power: With a 0.15um design and 3.3V low voltage required power supply, VIA Networking's VT6122 Velocity Gigabit Ethernet controller fully supports the latest ACPI, WoL, and PCI Power Management standards. The controllers will also automatically switch from 1000Mbps to 100 or 10Mbps in standby mode, further reducing power consumption.

GigaCheck™ Software Interface: A full software suite that enables comprehensive cable diagnostics, operating analysis, and status information. The software also can provide information regarding connection speed, link quality, cable analysis, and VLAN management – all in an easy to use attractive interface.

Key Features

- Gigabit Ethernet MAC and PHY supporting full and half duplex 10/100/1000 triple-speed operation
- Leading DSP-based Cicada PHY technology: 10BASE-T, 100BASE-TX, and 1000BASE-T compliant
- Support for PCI v2.2
 - VT6122: 32-bit 33/66MHz
- Flow control support (IEEE802.3x)
- Priority Queuing support (IEEE 802.1p)
- Virtual LAN (VLAN) Support (IEEE802.1Q) » Management Features
 - MIB counters, SNMP/RMON monitoring
 - Wake on LAN (WoL) support



- Power Management
 - PCI Power Management v1.1, ACPI 2.0
 - Wake-up from PRE-ACPI and abnormal shut-down
 - Automatic link switch from 1000 to 10 or 100 in standby
- PXE 2.1 remote boot support
- IEEE 1149.1 JTAG built-in
- EEPROM not required
- Complete driver support
 - Windows® 95, 98(SE), ME, 2000, NT, XP, Server 2003
 - Linux, Novell, Unix, DOS, Boot ROM, Macintosh
- 3.3V I/Os (5V tolerant)
 - Integrated 3.3V to 1.5V regulator circuit

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