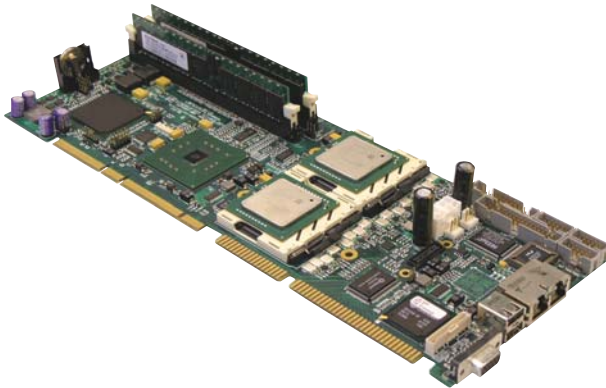# LBC9326

PCI/ISA Single Board Computer

The LBC9326 industrial single board computer features one or two 90nm Low-voltage Intel® Xeon® processors with 1MB L2 cache FC-mPGA4, Symmetric Multi-Processing 1.4 compliant, and up to 8GB dual channel, DDR2 SDRAM DIMMs, with full ECC support, on two sockets. Onboard are two 10 Base-T/100 Base-TX/1000 Base-TX Ethernet auto-negotiating controllers, dual channel Serial ATA support, as well as four Universal Serial Bus (USB) ports, serial/parallel ports, floppy interface and a PCI SVGA CRT and flat-panel controller with 8 MB of SDRAM memory.

The LBC9326 uses the Intel® E7520 chipset providing a 800 MHz system bus and internal PCI Express Links. Each x4 PCI Express link supplies a single port Gigabit Ethernet controller allowing multiple high speed offboard data transfers. The Hance Rapids ICH provides two PCI busses for added support. The 32-bit/33MHz onboard PCI bus links the Video controller, while the other 64-bit/66MHz PCI bus is routed to the backplane and supports up to two 64-bit / 66MHz or four 64-bit / 33MHz PCI I/O expansion slots. The Hance Rapids also supports USB, Serial ATA at speeds up to 150MB/s, and an LPC bus linking to an SMSC LPC47B272 Super I/O that provides legacy PCAT I/O. ISA support for 8-bit cards is also available.

The AMI BIOS, in field upgradeable Flash, supports software Ethernet enable/disable, video override, serial/parallel port re-mapping/disable, keyboard disable, console redirection, and PnP. Other features include a hardware monitor (board and system voltages, temperature, and fan speed), programmable three-stage watchdog timer, power fail circuit, and a 2 year limited warranty. Dual 2.8GHz processors with 1MB L2 full core speed cache. Dual Gigabit Ethernet. 64-bit/33-66MHz PCI bus and 800MHz Front Side Bus. Powerful. Diversified Technology's LBC9326 PCI/ISA industrial SBC is the ultimate choice for application developers addressing high per-formance Datacom/Data Casting, Telecom, CTI, Industrial Automation, Medical, and Military Intelligence Markets.

Product Features

Form Factor
PCI/ISA Single Board Computer based on the Intel® Xeon® processor

CPU/Cache
• Single or dual 90nm Low-voltage Intel® Xeon® Processors at 2.8GHz and 1MB ECC L2 cache, FC-mPGA4
• Intel® E7520 Chipset

Bus Interface
• 800MHz Front Side Bus; 33/66MHz PCI Busses; 8.33MHz ISA Bus
• Supports two 64-bit/66MHz or four 64-bit/33MHz slots
• High drive ISA buffers, up to 20 slots

Memory
Up to 8GB using 64/128/256/512/1G x 72 DDR2-400 Registered SDRAM

I/O
• Four USB Ports
• Two RS-232 Serial Ports
• One bi-directional Parallel Port
• Floppy Disk: Support for two drives
• Serial ATA: Support for two drives
• Dual PCI Express 10 Base-T/100 Base-TX/1000 Base-TX Ethernet

BIOS
PCI 2.1 compliant field upgradeable AMI BIOS

Physical Dimensions:
13.30" x 4.80" x 1.78" at CPU/fan

OS Support
Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP, UnixWare, Solaris, QNX, Red Hat Linux

Warranty
Parts and labor covered for 2 years

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Diversified Technology®
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CPU / Cache
- Single/dual 90nm Intel® Xeon® or LV Xeon® Processors at 2.8GHz and 1MB ECC L2 cache, FC-mPGA4
- Intel® E7520 Chipset

Bus Interface
- 800MHz Front Side Bus; 33/66MHz PCI Busses; 8.33MHz ISA Bus
- Supports two 64-bit/66MHz or four 64-bit / 33MHz slots
- High drive ISA buffers, up to 20 slots

Memory
- Dual Channel 240-pin latching DIMM socket (1 socket per channel)
- Up to 8GB using 64/128/256/512/1G x 72 DDR2-400 Registered SDRAM

Data Path
- 64-bit / 800MHz on CPU and memory bus
- Two x4 PCI Express Links
- 64-bit / 66MHz on off-board PCI bus; 32-bit / 33MHz on onboard PCI bus
- 8-bit on ISA bus

Flash Memory
- 8 Mb (1 MB) sectored Flash for BIOS field upgrade
- 4 KB serial EEPROM for user configuration

I/O
- USB Ports: four (one 10-pin header, one stacked Type A on face plate)
- Serial Ports: Two RS-232 (16C550) with 16 byte FIFO as COM1-2 with BIOS selectable IRQs and addressing, (two male 10-pin shrouded headers)
- Parallel Port: One bi-directional with all IEEE 1284 protocols supported and BIOS selectable IRQs and addressing, (male 26-pin shrouded header)
- Floppy Disk: Support for two drives (360KB to 2.88MB), (male 34-pin shrouded header)
- Serial ATA: Support for two drives, up to 150MB/s
- Ethernet: Dual PCI Express 10 Base-T / 100 Base-TX / 1000 Base-TX (Marvell 88E8052), (dual shielded RJ-45 on face plate with link/activity and speed LEDs)

Video
- PCI SVGA CRT/flat panel controller with 8 MB SDRAM memory (Silicon Motion SM722), (female DB-15 on face plate and 21-pin LVDS connector onboard)
- Supports CRTs with resolution up to 1280x1024, 16.8M colors@60Hz; 1280x1024, 64K colors@85Hz; or 1024x768, 16.8M col.@85Hz, non-interlaced

Clock / Calendar
- Real-time clock with 256 byte battery backup CMOS RAM

Misc.
- PS/2 mouse and keyboard (two 6-pin mini-DIN on faceplate from 10-pin header)
- Speaker, Reset, Intruder, Clear CMOS, Disable Video, Serial ATA activity LED
- Strobed CPU fans (two 3 pin headers)
- Dual ATX12V Power
- Hardware Monitor - CPU fans, Voltages

BIOS
- PCI 2.1 compliant field upgradeable AMI BIOS, boot from LAN (PXE 2.0)
- Support for memory hole at 15-16 MB; PnP V1.0a compatible
- Setup console redirection to serial port (VT100 or ANSI mode) with CMOS setup access
- Software enable/disable onboard Ethernet
- Diskless, keyboardless, and videoless operation extensions; system, video, and third party option card ROM shadowing
- Advanced security features for floppy and HDD; SymBIOS V2.3 and HDD S.M.A.R.T. support
- Advanced thermal management (overheat alarm and auto slow down)
- Multiport support, custom BIOS graphical boot

Supervisory
- Three-stage programmable watchdog timer drives interrupt on 1st stage, NMI on 2nd stage, system reset on 3rd stage
- Hardware system monitor (voltages, CPU, and board temperature, fan speed)
- Power failure and two end-user defined open-drain general purpose I/Os.

OS Compatibility
Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP, UnixWare, Solaris, QNX, Red Hat Linux

Mechanical
- 13.30" x 4.80" x 1.78" at CPU / fan (338 mm x 122 mm x 70 mm at CPU / fan)
- Double wide face plate
- Conforms to IEEE P996 PC/AT bus, PCI Rev. 2.1, and PICMG Rev. 2.0 standards

Power Requirements
Input power	133W Max	
ICC typ. *	+5V	4.75A
	+12V	4.29A

Onboard 3.3V generator to minimize backplane power requirements.

Environmental
Operating
- Temperature: 0° to 50°C / 32° to 122°
- Humidity (RNC): 5 to 95% @ 40°C / 104
- Altitude: 2,000 m / 6,800 feet
- Shock: 10g 11ms
- Vibration: 5-100Hz @ 1g

Storage and Transit (in approved packaging)
- Temperature: -40° to +70°C / -40° to 158°F
- Humidity (RNC): 0 to 95% @ 40°C / 104°F
- Altitude: 15,240 m / 50,000 feet
- Shock: 40g 6ms
- Vibration: 5-20 @ $0.01g^2$/Hz
       20-500Hz with -3dB Slope

Reliability
- MTBF: >233,000 hours @ 20°C / 68°F (Telecordia)
- 2 year limited warranty
- USB and mouse/key-board voltage protected by self-resetting fuses

Regulatory Compliance
- Safety: UL/cUL to 60950-1; CSA C22.2 No 950-93; EN 60950-1
- EMI/EMC: FCC 47 CFR Part 15 Class A; EN55022 Class A; EN50081-1; EN55024

Ordering Information
LBC9326/2800 (D)
SBC with single/dual 2.8GHz LV Xeon® processors

* (D) is used to indicate dual processors

Options
DDR2 SDRAM
Cables

Diversified Technology ®
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