



## DSTni™ - EX Chip

- ▶ Delivers a powerful Turbo 186 microprocessor
- ▶ Includes 256 Kbytes of internal static RAM
- ▶ Integrated Dual Ethernet MAC, One PHY, Dual CAN, SPI and quad serial ports
- ▶ Small footprint - 12 X 12 mm

## The DSTni-EX chip speeds networked products to market

The DSTni-EX is a complete communications single chip solution for any environment that requires a high-performance Turbo 186 compatible microprocessor. A DSTni-EX chip can be used as the primary processor in a system, or in more complex applications, it can function as a network coprocessor. DSTni-EX features a wide range of on-chip peripherals to support the most popular embedded networking technologies.

Communication channels include two Ethernet MACs, One PHY, Dual CAN, USB, I2C, SPI and four serial ports to handle the most demanding embedded applications.

### Enhanced Turbo 186

The DSTni-EX has been designed with a powerful Turbo 186 microprocessor that has several enhancements to maximize performance. The internal architecture of the processor has been engineered using RISC concepts to

minimize the number of clock cycles per instruction. In many cases, a typical instruction will execute in one clock cycle instead of four. 256 Kbytes of internal zero wait state static RAM have been included for fast program execution. For applications that require larger programs and/or data storage, an optional 24-bit address mode allows up to 16 Mbytes of addressable memory.

### Communications

DSTni-EX has two completely integrated 10/100 Mbps Ethernet MACs that are compatible with the AMD 960 Ethernet controller and one on-chip physical layer (PHY). For ruggedized, harsh networking environments, DSTni-EX provides CAN support with two individual CAN 2.0B channels. Both channels have been designed for high-speed data transmission in extremely noisy electrical environments. The DSTni-EX has four high-performance serial ports and local USB, I2C, SPI serial controllers.

If you're looking for a low-cost way to address device networking early in your design cycle, the DSTni-EX chip is the ideal solution.





## Features

### Microprocessor 125 MHz

- 16-bit Turbo 186 microprocessor
- 100% software compatible with the 80186
- 30 MIPS
- Single clock instruction and memory cycle
- RISC concepts minimize the number of clock cycles

### Memory

- 256 Kbytes of internal zero wait state static RAM
- 24-bit address mode allows up to 16 Mbytes

### Integrated Peripherals

- Four DMA controllers
- Three timer / counters
- Interrupt controller
- External chip select logic
- Watchdog timer
- 32 general purpose I/O
- Serial peripheral interface (SPI)
- I2C controller
- USB 1.1 controller

### CAN Communications

- Two independent CAN V2.0B controllers, One Mbps
- Express Message Technology for time-critical message delivery (patent pending)
- Full 16-bit interface to the CAN channels
- Four message FIFO

### Ethernet Communications

- Two Integrated Ethernet 10/100 Mbps MAC with buffering
- Compatible with AMD 960 controller
- DMA support
- One Integrated PHY

### Serial Communications

- Four asynchronous serial ports
- RTS / CTS support, DMA support
- Serial port data rates up to 230 Kbps

### Debug

- Integrated JTAG interface for ICE debug
- Hardware break points, trace buffers

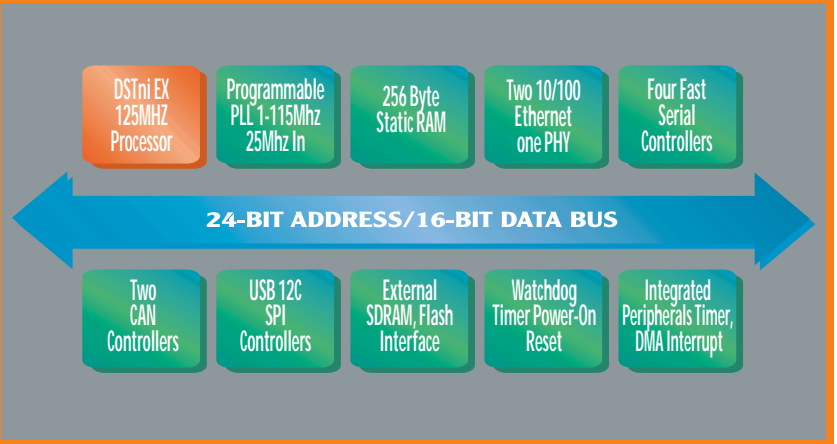
### Electrical Characteristics

- 1.8 VDC supply voltage for core
- 2.5 VDC supply voltage for I/O

### Mechanical / Environmental

- Package:
  - 184-pin BGA package, 12 x 12mm
  - Extended operating temperature: -40° to 85°C
  - Storage temperature: -65° to 150°C

## DSTni Block Diagram



## Ordering Information

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#### Part numbers:

GC-EX-184B

### For More Information

#### Master Distributor

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