TORNADO-32L

Ultra Low Cost Floating-point TMS320C32 DSP System
for ISA-bus PC Host Computer

features

- 60MFLOPS TMS320C32 floating-point DSP
- on-board two banks (#0/#1) of up to 128Kx32 0ws SRAM each
- on-board shared bus (SB) architecture with shared SRAM bank #0 resource and SB masters comprising of DSP and host ISA-bus memory I/F
- SB access from host via ISA-bus memory page
- compatibility with *TORNADO-3x* DSP Systems
- build-in device serialization code
- flexible modular system architecture
- compact ½ PC/AT board
- ultra low cost

I/O expansion

- serial I/O expansion (SIOX) I/F connector
- a variety of AD/DA and digital I/O daughter-card modules
- SIOX-coprocessors *TORNADO-SX*

software development tools

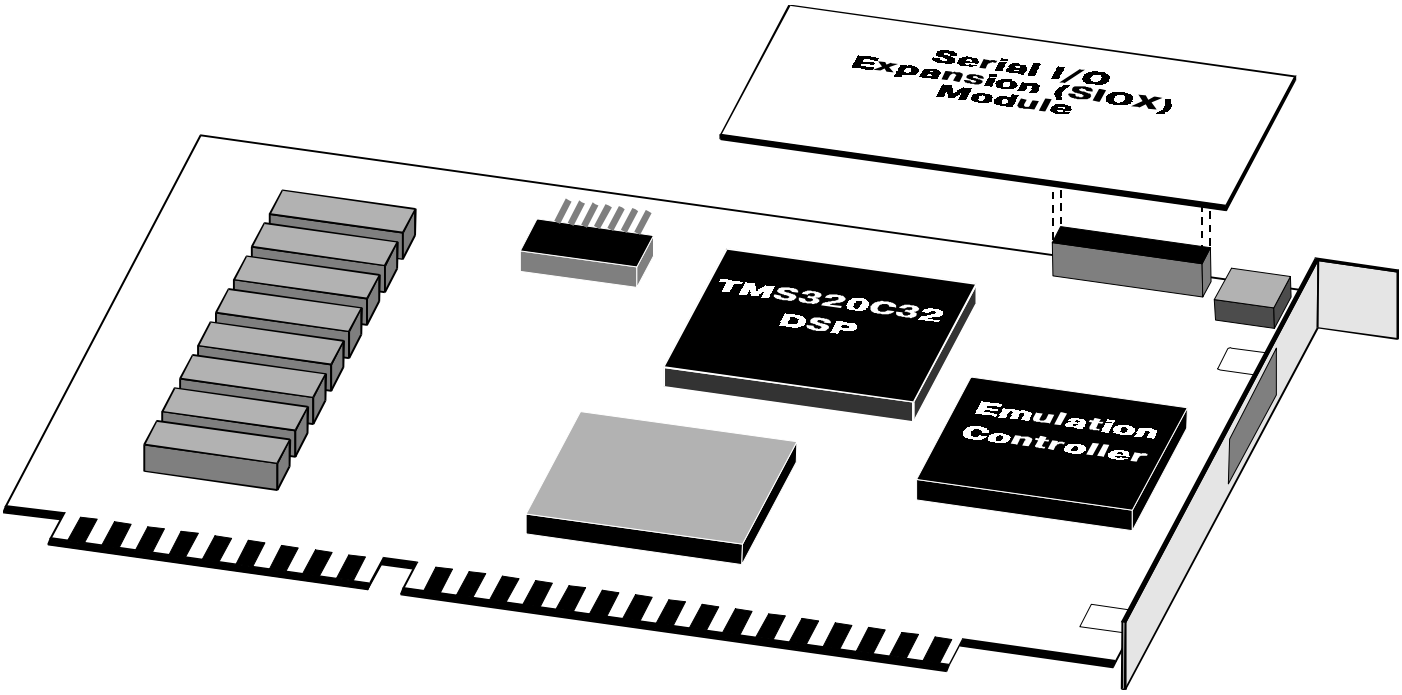
- MPSD port for TI XDS510 and *MIRAGE-510D* emulators
- optional on-board emulation controller *ECC*
  - þ identical to XDS510 and *MIRAGE-510D* emulators
  - þ TI HLL Debugger and Go DSP Code Composer IDE
- TI Floating Point DSP C/Assembler Compiler

application software

- Virtuoso, SPOX and Nucleus real-time OS
- Hypersignal tools for DSP algorithm development
- DSP, math, vector and communication functions
- host control functions and utilities
- vocoder/fax/modem function libraries

applications

- speech/fax/modem and communication
- real-time DSP, data acquisition and signal analysis
- audio and multimedia
- instrumentation
- acoustics
- medical devices
- OEM applications
- evaluation and education



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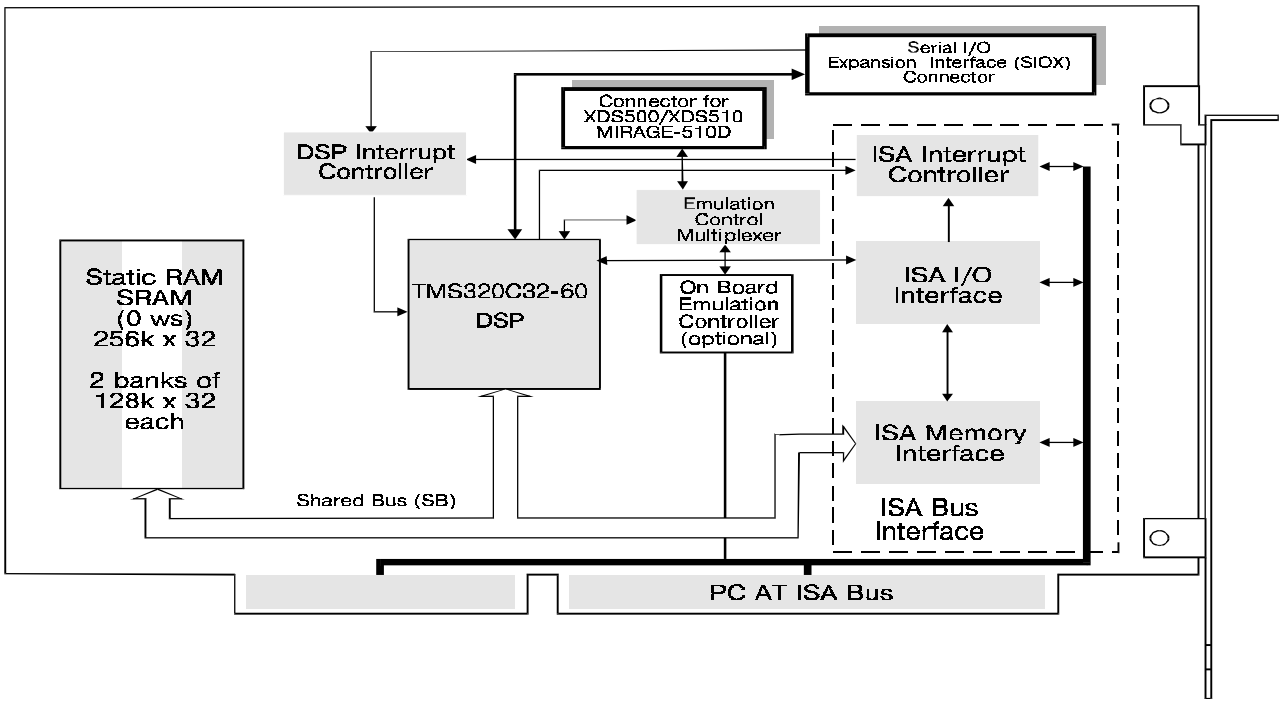

TORNADO-32L offers a beneficial combination of high-performance floating-point TI TMS320C32 DSP power and flexible modular construction at ultra low cost. This makes *TORNADO-32L* an ideal selection for evaluation/education purposes and OEM applications.

TORNADO-32L is compatible with *TORNADO-3x* DSP systems and differs from those only in absence of parallel I/O expansion (PIOX) I/F site and smaller capacity SRAM.

The on-board SRAM comprises of two banks #0/#1 with each bank designed to accomodate low cost 8KB..128KB SRAM chips. The on-board shared bus (SB) architecture has been optimized for high performance on-board data processing and in-parallel high speed data transfers between the on-board SRAM bank #0 and host ISA bus memory interface (I/F) without consuming virtually any DSP time. Host software can easily access any data from SRAM bank #0 via ISA bus UMB mapped memory page.

In order to meet different requirements for real-time signal acquisition, *TORNADO-32L* provides *TORNADO-3x* compatible serial I/O expansion (SIOX) I/F connector for optional daughter-card modules. A broad selection of compatible *SIOX* AD/DA, digital I/O and DSP coprocessor daughter-card modules is available.

Debugging of TMS320C32 software is performed by means of external TI XDS510 or MicroLAB Systems *MIRAGE-510D* scan-path emulators. Also, optional on-board plug-in emulation controller chip (*ECC*) delivers a low cost replacement for XDS510 and *MIRAGE-510D* emulators and runs under the industry standard TI HLL Debugger and Go DSP Code Composer IDE.

TORNADO-32L software can be developed with the TI floating point DSP C/Assembly tools. A variety of compatible real-time operating systems, DSP algorithm development tools and DSP/math/vector function libraries is available from multiple software vendors.

Flexible modular construction of *TORNADO-32L* delivers ready-on solutions for a wide selection of applications and is open to meet your requirements while keeping a cost of project to a minimum.

Technical Specifications

processor
TMS320C33 floating point DSP, 32 bits 60MFLOPS

on-board memory
two banks of 8K..128Kx32 0ws static RAM DIP chips each

host interface
ISA bus UMB mapped 32KB memory page. Eight ports in the ISA bus I/O space. Nine lines for PC IRQ.

Serial I/O expansion interface (SIOX)
One site for SIOX daughter-card module. Includes the DSP on-chip serial port and timers control lines, IRQ lines, reset, PC power lines.

physical/power
1/2 PC/AT card: 160x119mm (6.3”x4.7”). Occupies one 16-bit ISA-bus slot. Maximum power consumption (with 128Kx32 SRAM installed): 5V@1.5A

warranty
Full one year warranty with software update and on-line technical support.

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