

features

- 150 MFLOPS floating-point TMS320VC33 DSP (upward compatible with the industry-standard TMS320C31 DSP)
- up to 1Mx32 static RAM (SRAM)
- on-board shared bus (SB) architecture with shared SRAM/PIOX resources and SB masters comprising of DSP and host ISA-bus memory I/F
- SB data access from host ISA-bus memory I/F via ISA bus UMB memory mapped page
- modular design with daughter-card modules
- universal emulator for TMS320 DSPs
- compact size

I/O expansion

- two sites for serial I/O expansion (SIOX) I/F daughter-card modules
- one site for high-speed parallel I/O expansion (PIOX) I/F daughter card module
- a variety of AD/DA/DIO daughter-card modules
- application specific SIOX and PIOX-16 I/O coprocessors

multiprocessor expansion

- PIOX and SIOX DSP and I/O Coprocessors
- PIOX-Link daughter-card module with link ports

software development tools

- JTAG port for TI XDS510 and MicroLAB Systems MIRAGE-510D emulators

- optional low cost UECM daughter card module:
 - ❑ installs onto TORNADO-33 mainboard
 - ❑ identical to XDS510 and MIRAGE-510D emulators
 - ❑ emulation of the on-board TMS320VC33 DSP
 - ❑ optional external MPD/JTAG pod for emulation of any external TMS320 DSPs
 - ❑ TI HLL Debuggers and Code Composer IDE
- TI Floating-point DSP C/Assembler Compiler

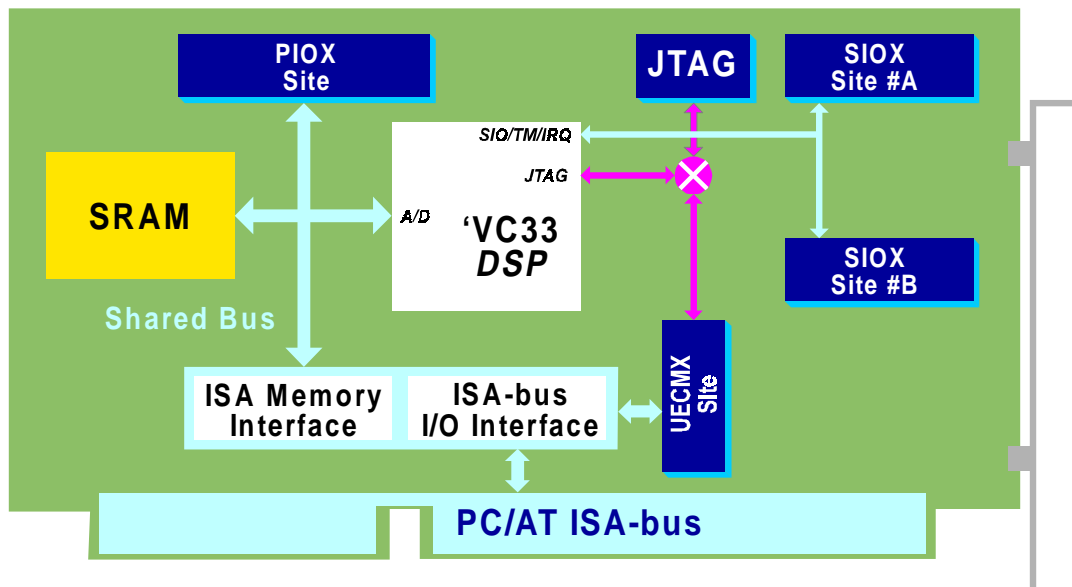
application software

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

applications

- vocoders and fax/modems
- instrumentation and industrial
- multimedia
- audio
- acoustics and radar
- image processing
- digital radio
- biomedical
- TMS320 DSP systems development/diagnostics





TORNADO-33 is a high performance and low cost DSP platform for real-time data acquisition and DSP for PC ISA-bus host applications. Flexible modular construction and a variety of “off-the-shelf” AD/DA/DIO and DSP/IO coprocessor expansion daughter card modules make *TORNADO-33* an ideal selection for telecommunication, multimedia, acoustics, instrumentation, industrial, digital radio and many more application as well as for TMS320 DSP systems development and diagnostics.

TORNADO-33 is based around the TMS320VC33 DSP, which is the upward compatible upgrade for the industry-standard floating-point TMS320C31 DSP and features 150 MFLOPS performance and 34Kx32 on-chip memory. The on-board memory of *TORNADO-33* includes up static RAM (SRAM).

An ultimate benefit of *TORNADO-33* is the on-board shared bus (SB) architecture that has been optimized for high performance on-board data processing and in-parallel high speed data transfers between the on-board SRAM/PIOX resources and host ISA-bus memory interface (I/F) without consuming virtually any DSP time. Host software can easily access any SB data via ISA-bus UMB mapped memory page.

Another benefit of *TORNADO-33* is a modular construction with daughter-card options, which allows quick “off-the-shelf” system

arrangement and to meet requirements of different DSP applications with real-time data acquisition. *TORNADO-33* feature serial (SIOX) and parallel (PIOX/PIOX-16) I/O expansion interface sites compatible with a variety of AD/DA, digital I/O, telecom, DSP coprocessor, multiprocessor and more.. daughter-card modules.

TORNADO-33 on-board JTAG emulation port is compatible with TI XDS510 and MicroLAB Systems *MIRAGE-510D* scan-path emulators and is used to debug the on-board TMS320VC33 DSP software. Also, optional low cost *UECM* universal emulation control daughter-card module for *TORNADO* DSP systems is available. *UECM* installs onto *TORNADO-33* mainboard, is identical to XDS510/*MIRAGE-510D* emulators, and runs under the industry standard TI HLL Debuggers and Code Composer IDE. *UECM* also delivers optional MPSP/JTAG external pod facility for emulation of any external TMS320 DSP. This converts *TORNADO-33* into universal development system for TMS320 DSP.

TORNADO-33 resident 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, vocoder/fax/modem and DSP/vector/math function libraries, which are available from multiple software vendors.

Technical Specifications

DSP

TI TMS320VC33 floating-point DSP, 32 bits, 150 MFLOPS, 34Kx32 on-chip memory

on-board memory

up to 1Mx32 1ws static RAM (SRAM)

host ISA bus interface

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

parallel I/O expansion interface (PIOX)

One site for PIOX daughter card module. Includes SB address and data, SB control, DSP onn-chip timer control, IRQ lines, reset, PC power lines.

serial I/O expansion interface (SIOX)

Two sites for SIOX daughter card modules. Includes the DSP on-chip serial ports and timer control lines, IRQ lines, reset, PC power lines.

physical/power

2/3 PC/AT card. Occupies one PC/AT ISA slot. Maximum power consumption (with 128Kx32 SRAM and UECM installed): 5V@2.1A