

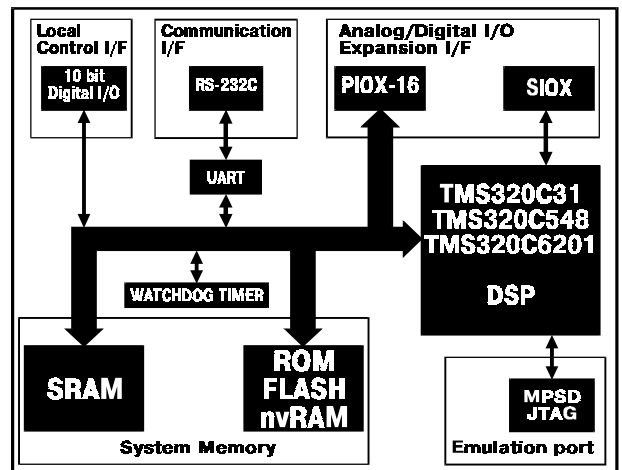
TORNADO-E31/E548/E6201
Embedded DSP Controller

features

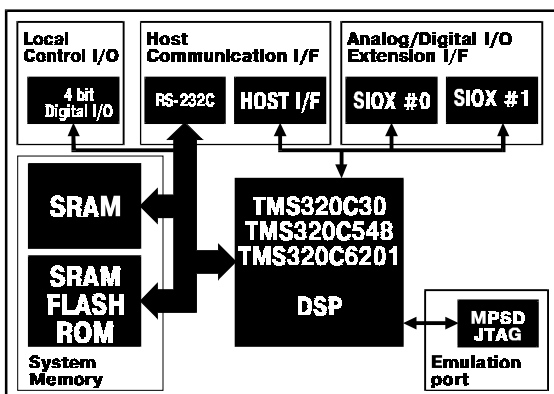
- 32-bit floating point TMS320C30/C31 DSP
- fixed point DSPs TMS320C548 and TMS320C6201
- industrial -40°C..+85°C TR with TORNADO-E31I/EL31I
- high-capacity static RAM
- ROM, EPROM, FLASH or nvRAM
- universal single-/dual-channel 10Mbps/115kBaud asynchronous/synchronous transceivers (UART/ USYRT) with HDLC/SDLC/MONO/BISYNC/ASYNC protocols and RS232/RS422 I/F
- digital I/O
- watchdog timer and reset control
- I/O expansion sites for TORNADO AD/DA/DIO daughter card modules
- compact modular design offer either optional PIOX-16/SIOX daughter card modules facility or plugging onto the user supplied motherboard
- bootloading on start-up
- low cost

I/O expansion

- parallel (PIOX-16) and serial (SIOX) I/O expansion sites for TORNADO AD/DA/DIO SIOX and PIOX-16 compatible daughter card modules
- SIOX-coprocessor daughter card modules for pipelined DSP multiprocessing
- SIOX modules for fax/modem and speech processing
- SIOX modules with telephone line/station I/F
- PIOX-16/SIOX modules for instrumentation
- SIOX modules for audio and DAT
- SIOX-bus architecture for multiple SIOX modules in one SIOX-path
- SIOX extenders
- PIOX-16/SIOX user prototype modules



TORNADO-EL31/EL548/EL6201
Embedded DSP Controller



TORNADO-SX30/SX548/SX6201
Embedded DSP Controller,
SIOX-coprocessor for TORNADO-3x/54x/6x

development tools

- MIRAGE-510D è XDS510 scan-emulators
- TI C/Assembler compiler
- TI C Debuggers and Go DSP Code Composer IDE
- SPOX, Nucleus and Virtuoso real-time OS tools
- DSP, math and vector function libraries
- Hypersignal and QEDesign DSP development tools
- DSPSE fax/modem/vocoders software components
- audio/image compression software tools
- videoconferencing/telephony software components

applications

- speech and audio processing
- vocoders, fax and modem
- telecommunication and X25 networks
- instrumentation
- industrial and medical controllers

TORNADO-E/EL/SX Embedded DSP Controllers

Controller	DSP	Memory		Digital I/O	Communication I/F (number of channels)	I/O Expansion I/F	Dimensions (mm)
		SRAM	EPROM FLASH				
<i>TORNADO-E31</i>	TMS320C31 60 MFLOPS	8k..128K x32	8K..1M x8	10 bit	UART/USYRT (2) RS232/RS422	SIOX (1) PIOX-16 (1)	3U
<i>TORNADO-E31I</i> (40°C..+85°C)	TMS320C31PQA 50 MFLOPS	8k..128K x32	8K..1M x8	10 bit	UART/USYRT (2) RS232/RS422	SIOX (1) PIOX-16 (1)	3U
<i>TORNADO-E548</i>	TMS320C548 66 MIPS	256K x16	8K..1M x8	10 bit	UART/USYRT (2) RS232/RS422 HPI	SIOX (1) PIOX-16 (1)	3U
<i>TORNADO-E62</i>	TMS320C6201 1600 MIPS	256K x32	8K..1M x8	10 bit	UART/USYRT (2) RS232/RS422 HPI	SIOX (1) PIOX-16 (1)	3U
<i>TORNADO-EL31</i>	TMS320C31 60 MFLOPS	128K x32	8K..1M x8	12 bit	UART (1) RS232	SIOX (1)	128x56
<i>TORNADO-EL31I</i> (T=-40°C..+85°C)	TMS320C31PQA 50 MFLOPS	128K x32	8K..1M x8	12 bit	UART (1) RS232	SIOX (1)	128x56
<i>TORNADO-EL548</i>	TMS320C548 66 MIPS	256K x16	8K..1M x8	12 bit	UART (1) RS232 HPI	SIOX (1)	128x56
<i>TORNADO-SX30</i>	TMS320C30 40 MFLOPS	64k..256K x32	8K..1M x32	4 bit	UART (1) RS232	SIOX (2)	128x120
<i>TORNADO-SX548</i>	TMS320C548 66 MIPS	256K x16	8K..1M x8	4 bit	UART (1) RS232 HPI	SIOX (2)	128x120

I/O Daughter Card Modules for TORNADO DSP Systems/Controllers

Module	TORNADO Expansion I/F	Description
<i>T/SDAS-121/156</i>	SIOX	high speed/accuracy AD/DA instrumentation module (1 channel, 14bit, $F_s \leq 310\text{kHz}$)
<i>T/SDAS-102/102</i>	SIOX	AD/DA instrumentation module with simultaneous sampling of input/output channels (2 ch., 16 bits, $F_s \leq 200\text{kHz}$)
<i>T/SBDAS-AD16/16/100</i>	SIOX-bus	high-speed, high-accuracy multichannel instrumentation A/D module with synchronous sampling of two channels(16ch., 16 bit, $F_s \leq 100\text{kHz}$)
<i>T/SBDAS-7890/8420</i>	SIOX-bus	multichannel AD/DA instrumentation module (8 ch., 12 bit, $F_s \leq 100\text{kHz}$)
<i>T/SDAS-4215</i>	SIOX	programmable stereo audio-codec for digital audio and multimedia ($F_s \leq 48\text{kHz}$)
<i>T/SDAT</i>	SIOX	programmable 24-bit AES/EBU and S/PDIF DAT I/F module ($F_s = 32/44/48\text{ kHz}$)
<i>T/SDAS-SCOM1</i>	SIOX	universal speech/fax/modem AD/DA with external telephone line/station I/F (1ch., 14 bit, $F_s \leq 24\text{kHz}$)
<i>T/SDAS-SCOM2</i>	SIOX	universal dual-channel speech/fax/modem AD/DA with external telephone line/station I/F (2ch., 14 bit, $F_s \leq 43\text{kHz}$)
<i>T/SBDAS-DDC1</i>	SIOX-bus	Digital radio daughter-card module ($F_s = 50\text{MHz}$, 12bit, 115kbaud UART with RS232C I/F, AGC-DAC)
<i>T/SDIO-16</i>	SIOX-bus	16-bit digital I/O module (expandable to 112 bits)