

### General Information

- Stand-alone high-performance floating-point DSP controller with 3U form-factor
- On-board USB 2.0 Host/Device and UART interfaces
- On-board battery backup real-time clock/calendar (RTC) with external power supply wakeup control
- Modular design with three daughter-card (DCM) sites
- Real-time signal and data I/O via Parallel (PIOX-II) and Serial (ASIOX or SIOX) DCMs
- Hosting/networking via Host Control (HCX) DCM
- Ideal for embedded DSP and DSP networking applications

### Key Features

- TI TMS320C6713 32-bit floating-point DSP featuring:
  - 2400 MIPS and 1800 MFLOPS
  - 256 kbyte on-chip RAM, program cache
  - McASP, McBSP, I<sup>2</sup>C and HPI ports
- up to 512Kx32 synchronous static RAM (SBSRAM)
- up to 16Mx32 synchronous DRAM (SDRAM)
- up to 64Mx8 FLASH
- USB Host/Device interface options:
  - 3x-port USB 2.0 Host/Device I/F
  - 1x-port USB 2.0 Device I/F
  - 1x-port USB 1.1 Device I/F (for backward compatibility with TORNADO-E6xxx G1)
- dual-channel 384 kBaud UART with RS232C I/F
- real-time clock/calendar (RTC) with battery backup, alarm, 256 bytes NvRAM, and external power supply wakeup control
- two programmable watchdog timers
- 8-bit general purpose I/O
- Low power consumption

### I/O Expansion

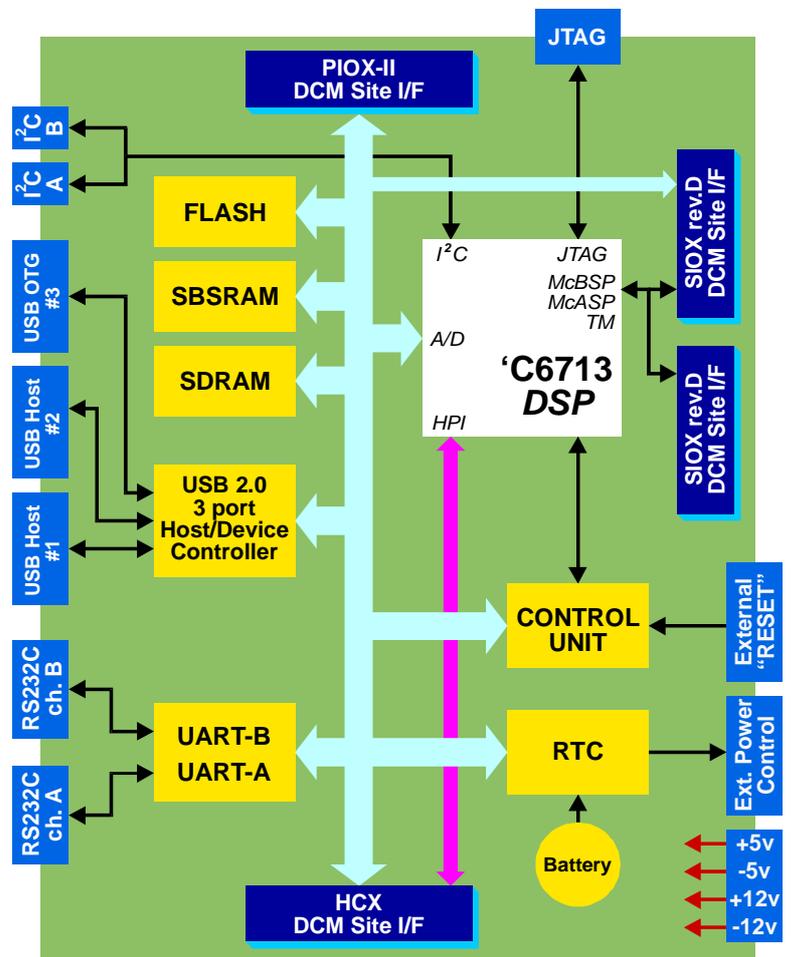
- one site for high-speed parallel I/O PIOX-II rev.D DCM
- one site for serial I/O ASIOX rev.D or SIOX rev.B DCM
- 'off-the-shelf' AD/DA DCMs for professional audio, digital radio, RF AD/DA, and industrial applications

### Host & Networking Expansion

- one site for optional HCX rev.A DCM
- high-performance CPU and/or a variety of networking and peripheral I/F via HCX DCM

### Applications

- embedded DSP with optional hosting & networking
- professional audio
- digital radio and RF signal processing
- vocoders and modems
- acoustics and radar
- instrumentation and industrial



## Technical Specifications

### DSP

TI TMS320C6713 32-bit floating-point DSP, 300 MHz (2400 MIPS, 1800 MFLOPS), 256 kbyte on-chip RAM, on-chip program cache.

### On-board Memory

- 128/256K/512Kx32 SBRAM
- 4M/16x32 SDRAM,
- 512K/8M/64Mx8 FLASH.

### External I/O Interfaces

- USB: either 3-port USB 2.0 Host/Device I/F (2x Host ports and 1x OTG port), or 1-port USB 2.0 Device I/F, or 1-port USB 1.1 I/F compatible with *TORNADO-E6xxx* G1 DSP controllers
- Dual-channel UART with RS232C I/F, 384 kBaud maximum speed.

### On-board general purpose I/O

8-bit with interrupt generation.

### High-speed Parallel I/O Expansion DCM site I/F (PIOX-II rev.D)

- 32-bit Asynchronous I/F section for low-speed PIOX DCMs (compatible with PIOX rev.C DCM site I/F for *TORNADO-E6xxx* G1 Controllers)
- 32-bit Synchronous 100 MHz I/F section for high-speed PIOX-II rev.D synchronous DCMs.

### Serial I/O DCM site I/F (ASIOX rev.D and SIOX rev.B)

- On-board area is shared for SIOX rev.B DCM site and ASIOX rev.D DCM site
- SIOX rev.B DCM site is standard for all *TORNADO-E* DSP Controllers since 1994 and comprises two DSP McBSP ports, two interrupt request inputs, and two DSP on-chip timers I/O
- ASIOX rev.D comprises two 16-bit wide McASP ports, two McBSP ports, two interrupt request inputs, and 16-bit parallel asynchronous I/F.

### Real-time Clock/Calendar and External Power Supply Control

- Battery backup
- 2100 year calendar
- Programmable alarm
- Programmable watchdog timer (0.01..99.99 s)
- 256 bytes NvRAM
- External power supply wakeup control.

### Host Control Expansion DCM site I/F (HCX rev.A)

- Plug-in configurable I/F
- Compatible with HCX rev.A DCMs.

### Physical & Power

- Industry standard 3U form-factor (100x160mm)
- +5V @ 0.5A , ±12V (not used, on-board routed to PIOX-II, SIOX, ASIOX and HCX DCM sites).