Multi-DSP-Based Video Infrastructure Solution

Benefits

- Reduce bill of materials with single board solution which provides multiple video/audio I/O and signal processing
- Reduce time-to-market and minimize risk with complete hardware and software package
- Enable leading-edge video intensive applications with software programmable DSP based upon the TI TMS320C64x™ platform with superior performance up to 1 GHz
- Differentiate with multiple product capabilities with unprecedented board density for dozens of channels per slot
- Support video specific peripherals, full encode, full decode, high definition and support for all major multimedia codecs

Mango DSP

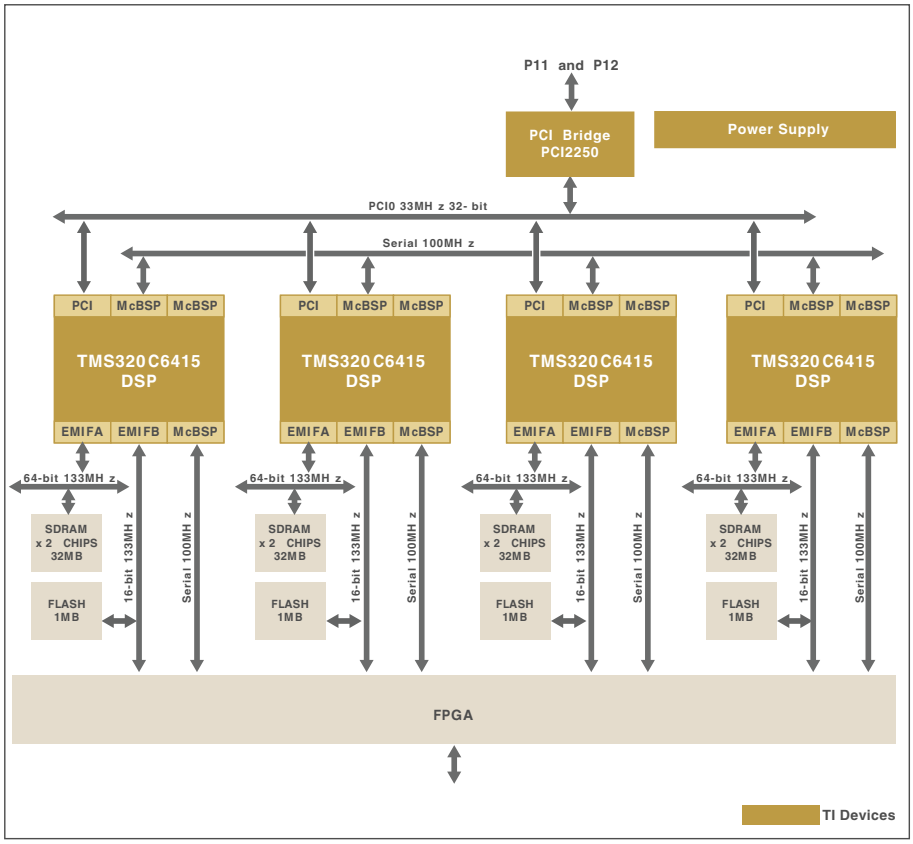
Target Applications

- **Homeland security**
- **Communications**
- **Machine vision**
- **Medical imaging**
- **Defense and aerospace**
- **Video infrastructure systems**

Solutions for video/imaging products based on TI DSPs provide developers the flexibility to design a wide range of products. By leveraging the DSP programmability, processing performance, video specific peripherals and support for all major multimedia codecs, developers can design differentiated products with customized features to meet changing market needs.

For developers of video infrastructure equipment, MangoDSP has developed a TI DSP-based solution to reduce time-to-market and minimize risk with its Seagull PMC Application Developer Kit. This solution is designed with four TI TMS320C6415 DSPs running at 600 MHz and multi-channel video and audio I/O in a single PCI board. Bundled with a complete application development framework, as well as a range of video encoders, the Seagull PMC ADK is an ideal platform for development of advanced applications for homeland security, broadcast and advanced video communications.

System Example: Multichannel Video Processing/Imaging



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Functional Description

Hardware

The Seagull PMC ADK interfaces with analog and digital video inputs via external connectors. Each DSP connects to the FPGA via a 133 MHz 16 bit high speed bus. This tightly coupled architecture allows the FPGA to act as an Input Control Mechanism and as a co-processor. The DSP's 32 bit 33 MHz PCI allows for standard inter DSP and Host connectivity. Each DSP has a 64 bit 133 MHz bus that connects to the 32 MBit of SDRAM and an additional 133 MHz 16 bit bus that connects to the Flash memory and the FPGA. A direct FPGA connection is provided via the 200-pin user connector.

Software

The Mango MPEG-4 Encoder supports MPEG-4 simple profile to enable the following features:

- Frame size QCIF up to full D1
- I & P frame in VOP
- Unlimited motion estimation window search
- Half pixel motion estimation search
- VBR/CBR
- Four motion vectors per macroblock
- Automatic scene change detection

Component Selection

Seagull PMC

- Four (4) TI DSPs – TMS320C6415 DSP 600 MHz
- Altera Apex II FPGA
- Full PCI video form factor
- MBytes SDRAM / 4 Mbytes Flash
- 3 Composite Video Input / 1 Output
- USB Input / 64 Pin user definable input

MangoDSP also offers the Seagull PCI , designed with eight (8) C6415 processors for even more video and imaging processing power.

Getting Started – Development Tools

Tools

- **TMS320C6000™ DSP Code Composer Studio™ Integrated Development Environment**
- **Mango Seagull PMC ADK Video Processing Platform Board:** The board comes with an extensive software package, including:
  - Windows® 2000/XP/Linux Driver
  - Mango BIOS - Rapid software development libraries
  - Mango Video BIOS - Rapid video processing libraries
  - Free Mango JPEG encoder (Basic)
  - Free Mango H.263 Codec (Basic)
  - Free Mango MPEG-4 encoder (Basic)
- **MangoTools™ Software:** MangoTools is designed to facilitate the rapid and cost-effective development of performance embedded multiprocessing system solutions.

  MangoTools include the following:
  - MangoDriver - for accessing the cards' components
  - MangoBIOS - for platform independent software development
  - MangoSoftware - for platform independent software development

Documentation

All technical documentation including DSP and Host libraries and MangoDSP Bios is available from MangoDSP.

Contact Information for Questions/Support

To purchase this solution or for more information: us@mangodsp.com

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