

Dupree™

96 GFLOPS peak  
Low-Power  
PMC Processor Card

- Scalable 96 GFLOPS peak PMC Processor Card
- Dual ClearSpeed CSX600™ 50 GFLOPS peak Processors
- Flexible I/O DMA Directly into Processor Memory
- 1 - 2 GBytes of DDRII 200Mhz SDRAM per Processor
- PCI-X 133/64 over PMC with Direct DMA to Processor Memory
- Algorithm Libraries: BLAS, LAPACK, FFTW, Compression, GROMACS
- VSIPL++ Libraries under development
- Linux Based Drivers
- Choice of:
  - Dual Multi - Gigabit CameraLink Interfaces or
  - 10 Gigabit Ethernet Interface

**WorldScape's focus is on providing the world's highest performance and lowest power Scalable Processing Platforms for applications in image, signal and sensor processing.** The Dupree™

Co-Processor card delivers the world's highest performance per watt for single or double precision floating point performance in a scalable PMC form factor. The Dupree accelerator card is designed to operate at less than 25 watts and provide 96 GFLOPS of peak computing power.

Our unique PMC design maximizes throughput with the addition of one full duplex 10 Gigabit Ethernet port or two (2) CameraLink Interfaces enabling a wide range of applications from embedded image, signal and sensor processing to use as a co-processor on motherboards. Dupree is designed for customers seeking to embed higher processing density than traditional cluster solutions can achieve with native PCI-X card plug-ins. The CSX600's multi-threaded array processor (MTAP™) core is based on an array

WORLDSCAPE

Scalable Processing Platforms



of 96 processing elements (PE's) with dedicated SRAM and I/O capability per PE. The CSX600 Mono processor issues programming instructions to the PE's using a SIMD architecture for execution in parallel. In addition to internal memory, each CSX600 is supported by up to 2 GBytes of external 200MHz DDRII SDRAM. The CSX600 chips are daisy chained together over ClearSpeed's ClearConnect™ Bus Bridge (CCBR) interface. A PCI-X bus interface and I/O processor reside on the second CCBR port of the CSX600s for a chained data path from the PCI-X bus to the I/O ports.

Combined with powerful optimized software libraries, a full functioned SDK and Cn compiler, WorldScape's Scalable Processing Platform is the best choice for high-performance embedded computing applications where raw performance, low-power and processing density is desired.



## Performance

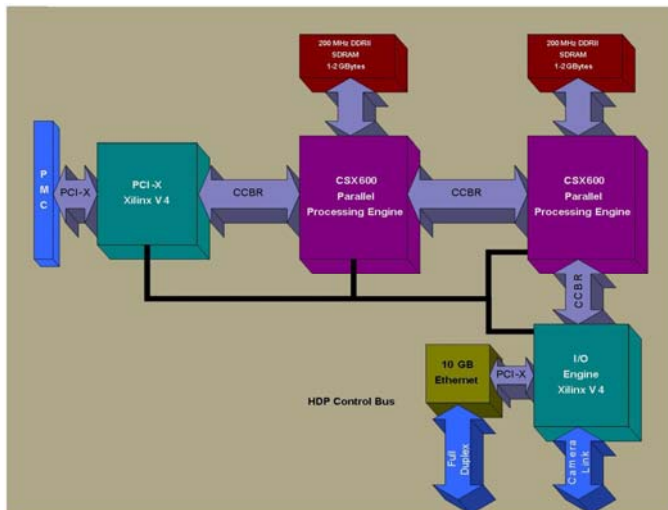
- 96 GFLOPS peak single or double precision
- 50 GFLOPS sustained DGEMM performance
  - o 25 GFLOPS sustained per chip
- 200 MHz DDRII SDRAM Bus
- 1 GByte/s PCI-X Peak Throughput
- 1.6 Gbps Base Configured Camera Link
- 3.0 Gbps SAS Interface

## Processor Core

- ClearSpeed™ CSX600 Floating Point Co-processor
- 250MHz Internal Core Clock Rate
- 128 Kbyte on-chip SRAM
- 6 Kbyte SRAM per PE
- 96 Element Multi-Threaded Array Processor Architecture (MTAP)

## Software

- Professional Software Development kit (SDK) from ClearSpeed™
- Signal Processing and Floating Point Libraries
- Linux Operating System Driver
- BLAS, LAPACK, GROMACS, and VSIP++ (under development)



Dupree SPP Architecture

WorldScape has been developing world-leading massively parallel processing architectures and software. Our current technology enables advanced applications in image, signal, and sensor processing, medical imaging, and high performance embedded computing both in systems and on motherboards. WorldScape's technology roadmap includes the use of internal IP, patents and innovative research to scale to PetaFLOPS computing at the lowest power levels and smallest size. Engage with WorldScape today to apply our cutting edge technology to your application. For further information contact Dan Poore at (415) 789-5574 or Dan.Poore@wscapeinc.com

## PCI-X

- 133MHz 64 bit PCI-X bus.
- Direct Memory Mapped DMA transfer to CSX600 Memory

## 10 GB Ethernet

- 1 full duplex 10 Gigabit Ethernet interface

## CameraLink

- 1.6 Gbps Base Configured CameraLink Interface
- Register controlled camera control
- Two interfaces enable dual camera control

## Power

- < 35 Watts

## Environmental

- 0° C to + 55° C Forced Air Cooling
- 10 – 90 % Non-Condensing Humidity

## Availability

- 3Q '07



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