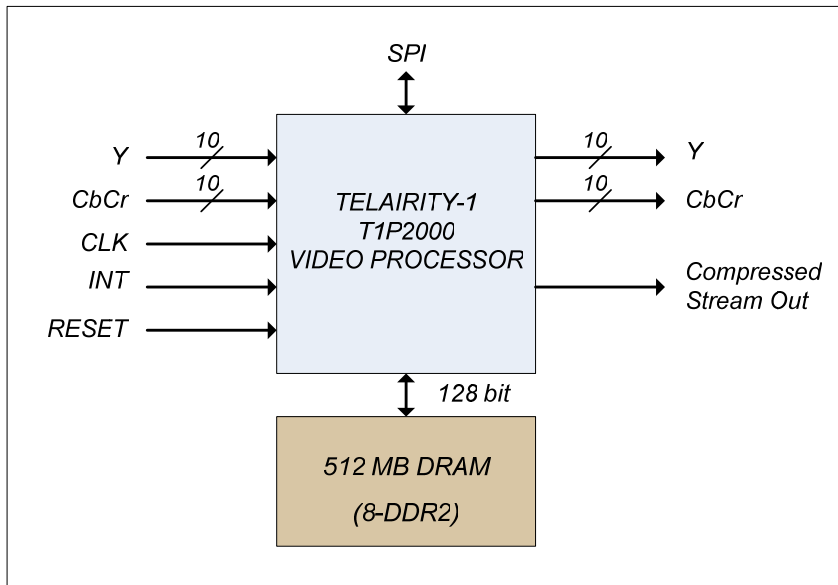




Product Brief

T1P2000 Video Processor

The T1P2000 Video processor is the first implementation of the Telairity-1 Architecture operating at 668 MHz. The T1P2000 is designed for real time video processing and offers a peak performance of 70 Giga operations per cycle. The Telairity-1 architecture supports the intrinsic parallelism of video algorithms at several levels: multiple Vector Cores operate in parallel on video data, and each Vector Core is itself a 16 bit, four pipe, Vector engine that operates on vectors of length 32. A single T1P2000 instruction can perform 128 operations in parallel, making it the most powerful video processor for real time, High Definition (HD) applications such as H.264/AVC video compression.



Highest level of Integration

The T1P2000 video processor achieves the highest level of integration in a single chip by using Telairity's proprietary design methodology and tools. This minimizes the chip count, and reduces total system cost of HD video encoders for H.264/AVC and VC1. The lower chip count reduces board space enabling compact, high quality video encoding systems.

Telairity-1 Video Processor T1P2000

Key Features

The Telairity T1P2000 integrates the following advanced features into a single high performance processor:

- Five TVP400 Vector Cores
- 668 MHz operation
- Video Centric Instruction Set
 - Flexible Vector Instructions
 - Optimized memory access for video data
 - Sum of Absolute Differences
- Fully programmable in C; Intrinsics for optimal performance
- Complete set of development tools including compiler, assembler debugger and HW development platform
- Highest level of performance and integration in a single video processor - minimizes need for expensive FPGAs
- Easily scalable for multi chip applications
- Smallest footprint for broadcast quality H.264 video compression

Applications

- **Broadcast Video**
 - Satellite, Cable, Terrestrial
 - Video over IP
- **Professional Video**
 - Editing
 - Storage
 - Authoring
- **Digital Imaging**
- **Security and Surveillance**
- **Video Conferencing**
- **Professional Video Cameras**

Ordering Information

Video Processor: T1P2000
 Speed Grades:
 668MHz : **T1P2000-6**
 519MHz : **T1P2000-5**
 Package: 1156 FCBGA
 Power: 15W
 Core voltage: 1.25V
 I/O voltage: 1.8V

About Telairity Semiconductors

Telairity Semiconductor delivers solutions for high-definition (HD) broadcast-quality video applications. Products built on the company's Telairity-1 real-time HD video architecture deliver the industry's highest level of video processing available on a single chip and address emerging standards for video compression including H.264. Telairity supplies highly integrated, complete hardware and software solutions that enable OEMs to get to market quickly with cost effective, high reliability and high-quality encoding systems.

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TVP400

Each TVP400 Vector Core is in itself a powerful SIMD vector processor with the following features:

- 4 -16 bit Vector Pipes, with a vector length of 32; 11 Functional units per pipe
- 32 bit scalar processor with 32KB of fully associative Instruction Cache
 4 KB of 4 way set associative Vector Data Cache
- Efficient 128KB of vector SRAM, with 16GB/s, flexible memory access
 Performs 12 concurrent memory accesses

High Bandwidth SDRAM Memory Controller

- 128-bit memory bus with 5.3GB/s of bandwidth supports eight x16 DDR2 DRAMs
- Arbiter to manage DMA requests from each TVP400 processor and the Video Data I/O Controller

Flexible Video I/O Controller

- Video Input clock of 74.25MHz for HD or 67.5 MHz for SD
- Two 10-bit video input channels (Y and Cb/Cr) and two 10-bit video output channels (Y and Cb/Cr)
- Five serial channels, three Master Serial Processor Interfaces (SPIs), and two Slave SPIs. Can be programmed to run at two times the system clock of 74.25MHz – 150 MHz
- Compact Bit packing unit for encoding

