

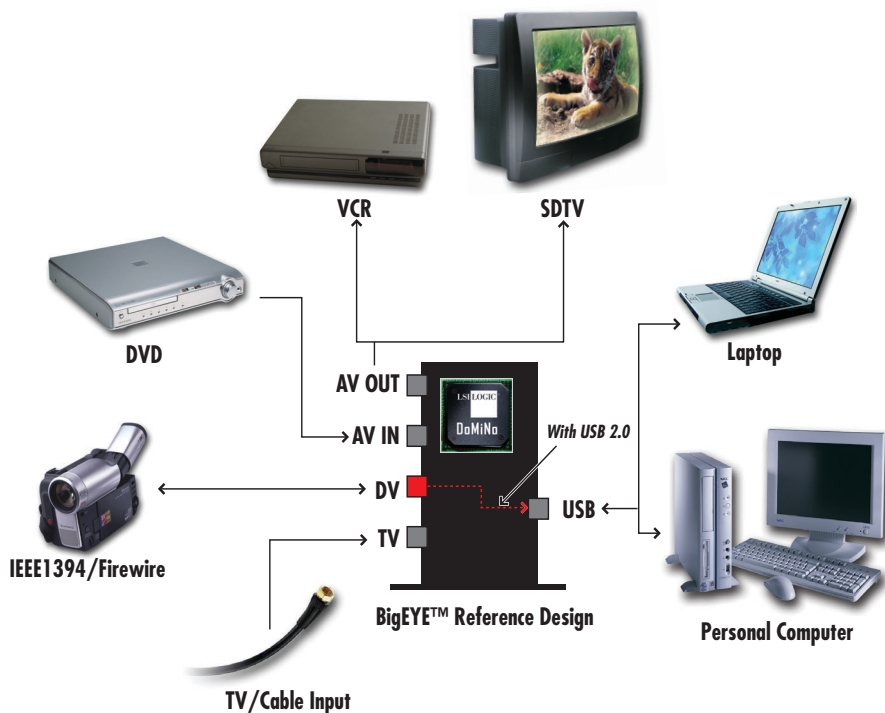
# DoMiNo™ PC Peripheral Product Family (DMN-8100/8150)

## DoMiNo

### OVERVIEW

The LSI Logic DoMiNo™ network media processor is the industry's first programmable, single-chip, multi-stream, multi-format DV and MPEG audio/video system codec (encoder/decoder) architecture. This powerful and flexible architecture has been designed to trigger — very much like the domino effect — an endless wave of innovative digital audio/visual (A/V) products for the PC consumer, prosumer and professional markets. The LSI Logic DoMiNo architecture brings PC distributed video and digital entertainment to the networked home.

To deliver the industry's best-quality multi-format encoding, the LSI Logic DoMiNo architecture uses LSI Logic's award-winning PerfectView™ MPEG-2 encoding algorithm in combination with its advanced motion compensated noise filtering for superior source noise reduction. Moreover, using LSI Logic's MPEG-4 Simple Profile (SP) codec, the DoMiNo-based product family enables streaming of low bit-rate personal content and movies over the Internet.



*BigEYE™ USB 1.1/2.0 Reference Design Platform*



### TARGETED PC APPLICATIONS:

- USB PC peripherals for video editing, DVD/VCD creation, TV PVR applications
- Video encoding for PC video streaming/content sharing applications
- PC home media gateways
- PC home media servers
- DV camcorder video capture, encoding, and multi-format transcoding



## DOMINO PC PERIPHERAL PRODUCT FAMILY

The LSI Logic DoMiNo PC peripheral product family consists of the DMN-8100 and DMN-8150 codecs, as well as a complete reference design platform. These products are based on a true system-on-a-chip architecture, reducing cost, design complexity, power consumption, and time-to-market through its high level of system integration and its C-Ware™ high-level programming environment. The DoMiNo architecture has true multi-format A/V and DV codec capabilities that enable unique features for PC peripheral editing and TV PVR applications. These include, but are not limited to, encoding to or from any digital (DV) or analog (A/V) source, MPEG-1, MPEG 2, and MPEG-4, and DV codec functionality, as well as motion compensated temporal filtering (MCTF) for crystal clear video quality from any source.

The DMN-8150 codec is designed to enable very low-cost video peripherals, based on MPEG-1, MPEG-2, and MPEG-4 compression standards for archiving and Web-streaming applications, as well as the emerging time-shift and digital video recording (DVR) applications.

The DMN-8100 includes the same functionality and features as the DMN-8150, with additional support for DV encode and decode as well as transcoding from DV to MPEG-1, MPEG-2, and MPEG-4; flexible features that are critical for enabling new video editing applications. All support both NTSC and PAL formats.

## KEY DOMINO PC PERIPHERAL FAMILY FEATURES

### *Single-Chip System Integration*

The integration of MPEG video, DV processing, combined with MP3, MP1L2, AAC, and AC3 audio format compression and decompression, enable single-chip DVD content creation, video editing, and content sharing solutions. The high level of system integration drastically reduces system design complexity, component cost and time-to-market. The reduction of component count greatly increases system reliability and cuts power consumption significantly.

### *Built-in A/V Networking*

The integrated IEEE1394 link (DMN-8100 only) interface makes it easy for developers to add networking to consumer electronic devices, such as DV camcorders or IEEE1394 A/V hard drives.

### *Video and Audio Streaming*

The LSI Logic DoMiNo is a flexible architecture that provides support for MPEG-4 and MP3 streaming applications over broadband Internet connections. With LSI Logic's MPEG-4 H.263 (SP, ASP\*) implementation, DoMiNo-based products deliver bit-rates as low as 64-256 Kbps. They are capable of VHS quality for streaming movies and sports programs at 1.25 Mbps or lower on a 35" TV.

### *Multi-Stream, Multi-Format A/V Codec*

The programmable audio DSP and flexible video processor, together with the RISC instruction set extensions, make it possible to handle the encoding and decoding of a variety of video and audio formats, including:

- MPEG-2 MP@ML
- MPEG-1
- MPEG-4 (H.263 SP, ASP\* with AAC and MP3 audio)
- DV & MiniDV, DVCPRO, and DVCAM — DMN-8100 only
- DVD-Audio with Meridian Loss-less Packing (MLP) and LPCM decoding
- Audio compression featuring MPEG-1 Layer I, MPEG-1 Layer 2, MPEG-1 Layer 3 (MP3), and AC-3

The multi-stream A/V codec enables a host of unique applications, such as multi-format video encoding/transcoding for consumer as well as advanced video editing, PC time-shifting for personal TV viewing, and low bit-rate MPEG-4 encoding for video content streaming/file-sharing.

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### ***Transcoding and Transrating***

The powerful signal processing capabilities of the DoMiNo-based PC peripheral products include the ability to transcode and transrate between different encoding formats and bit-rates, respectively, at faster than real-time speeds (high-speed dubbing). Transcoding enables a set of unique features, including, but not limited to:

- Digital PC video peripheral time-shifting. Transcoding is required from MPEG-2 MP@HL to MPEG-2 MP@ML, or even MPEG-4 SP at 1.25 Mbps or lower.
- Recording from or to DV camcorders for editing, archival, or video-mailing purposes. Transcoding is required from DV to MPEG-2 or MPEG-1, or even MPEG-4, or vice versa.
- Record digital music in MP3 format for playback with portable MP3 players.

### ***Variable and Constant Bit-Rate Control (VBR and CBR)***

LSI Logic DoMiNo DMN-8100 supports both VBR and CBR MPEG video encoding to provide manage and storage optimizations for a variety of applications:

- CBR encoding for PC recording and time-shifting capabilities for personal TV viewing, as well as DVD content creation
- Advanced single-pass VBR encoding for video-quality optimizations in DVD video and DVD recordable applications

### ***Flexible System Bus***

The flexible system bus supports 16- or 32-bit generic host bus protocols. Various system configurations are therefore possible, giving designers the flexibility they need to optimize and expand system performance and functionality.

### ***Large Memory Bandwidth***

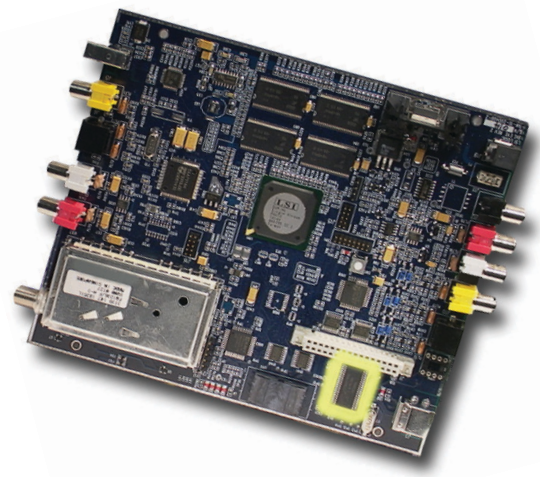
The integrated memory controller supports 32 to 64 Mbytes of single and DDR SDRAM. The 32-bit, 148.5 MHz bus has a maximum bandwidth of 1.2 Gbytes, able to meet even the most demanding video processing applications such multi-format video transcoding, and video pre-processing with MCTF.

## **DOMINO PC PERIPHERAL REFERENCE DESIGN**

### ***USB 1.1/2.0 PC Peripheral Reference Design BigEYE™***

For OEM manufacturers interested in harnessing the power and flexibility of the LSI Logic PC peripheral product family, the BigEYE USB 1.1/2.0 plug and play reference design is available now. Included with the reference design are all software C-Ware components required for both DMN-8100 and DMN-8150 features, including a PC sample application with preview filter software, as well as WDM and USB firmware source-code with support for the latest PC operating systems.

Included with the BigEYE reference design kit, are all software components, documentation, and design files necessary for aggressive time-to-market initiatives.



*BigEYE™ USB 1.1/2.0 Reference Design Platform*

# DoMiNo™ PC Peripheral Product Family

DMN-8150 FEATURES :	DMN-8100 FEATURES :
308 BGA	308 BGA
	DV & Mini DV, DVCPRO, and DVCAM(DV-25) Encode, Decode, Pass-Through
	A/V C DV Camera Control
	Transcode to MPEG-1, MPEG-2, MPEG-4 SP
MPEG-1 Codec: 384 Kbps to 4 Mbps	MPEG-1 Codec: 384 Kbps to 4 Mbps
Resolution: SIF, QSIF	Resolution: SIF, QSIF
MPEG-2 Codec: 1.8 Mbps to 10 Mbps	MPEG-2 Codec: 1.8 Mbps to 10 Mbps
Resolution: 720, 704, 544, 480, 352	Resolution: 720, 704, 544, 480, 352
MPEG-4 SP, ASP* Codec: 64Kbps to 1.25 Mbps	MPEG-4 SP, ASP* Codec: 64Kbps to 1.25 Mbps
Resolution: SIF, QSIF	Resolution: SIF, QSIF
VBR and CBR support	VBR and CBR support
Audio Compression formats MPEG-1 Layer 1, 2, 3(MP3), AAC, and AC-3	Audio Compression formats MPEG-1 Layer 1, 2, 3(MP3), AAC, and AC-3
*ASP without 1/4 PEL or GMC	*ASP without 1/4 PEL or GMC

For more information please call:

## LSI Logic Corporation

North American Headquarters, Milpitas, CA  
Tel: 866 574 5741

### North America

Milpitas, CA  
USA  
Phone: 1-408-490-8000  
Fax: 1-408-490-8590

Quebec, Canada  
Phone: 1-514-426-5011  
Fax: 1-514-426-7119

### Europe

Crawley, West Sussex  
United Kingdom  
Phone: 44-1293-651100  
Fax: 44-1293-651119

### China

Beijing, China  
Phone: 86-10-626-38296  
Fax: 86-10-626-38322

Chengdu, China  
Phone: 86-28-6713-150  
Fax: 86-28-6713-694

### Japan

Kohoku-Ku, Yokohama  
Kanagawa Japan  
Phone: 81-45-474-7571  
Fax: 81-45-474-7570

### Korea

Seoul, Korea  
Phone: 822-561-9011  
Fax: 822-561-9021

### Taiwan

Taipei, Taiwan  
Phone: 886-22-517-4938  
Fax: 886-22-517-4937

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