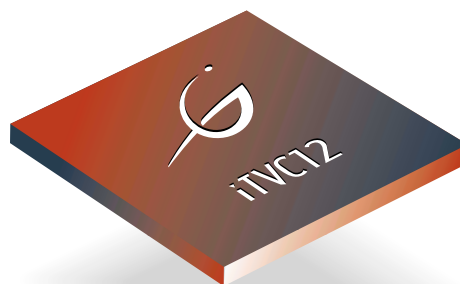GlobeSpan

Accelerating Communications

The iTVC12 is an audio/video encoder with Program and Transport stream generation for broadcast, communications, and networking

iTVC12 MPEG-2 Encoder

GlobeSpan's iTVC12™ is the most versatile member of the iVAC™ family of encoding subsystems. As with the whole iVAC family, the iTVC12 is a single-chip MPEG-2 encoder for audio, video, and system. Unique to the iTVC12 is its MPEG-2 Program or Transport stream output, support of both MPEG-2 audio and Dolby® Digital audio compression, and full D1 resolution for compatibility with DVD and ATSC standards.

Applications
♦ Add MPEG-2 encoding to broadcast environments.
♦ Implement consumer, internet, and networking applications, including:
  - Personal video recorders,
  - Distance learning,
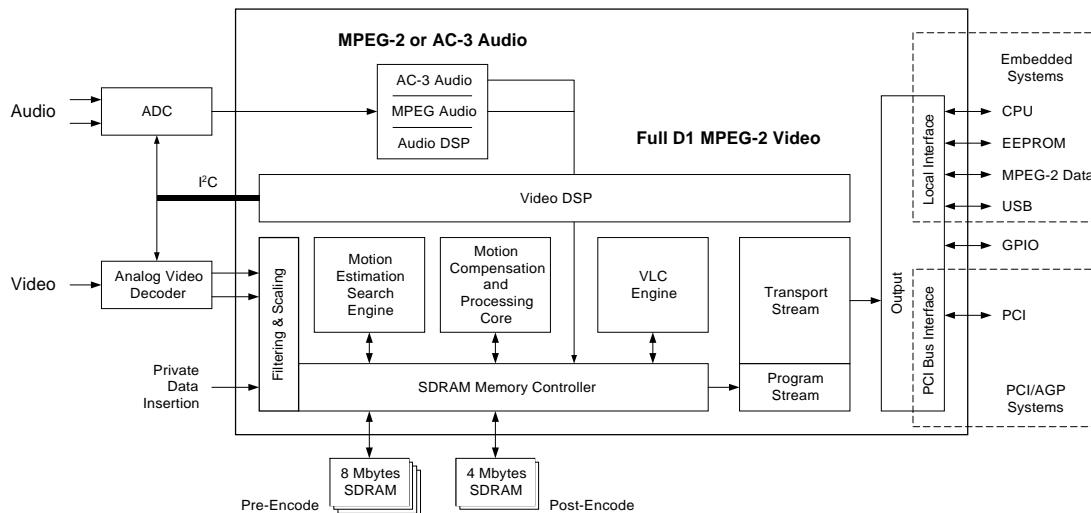 - Security and monitoring systems,
  - Internet video.

Benefits
♦ A/V integration simplifies synchronization.
♦ Transport layer enables easy multiplexing transmission and processing of MPEG streams.
♦ Glueless I/F for USB and embedded systems.
♦ Enables interoperability with broadcast and consumer standards.
♦ DVB-SPI interface compatibility for professional and broadcast environments.

Features
♦ MPEG-2 video compression at D1 resolution — 720x576 for PAL and 720x480 for NTSC.
♦ MPEG-1 Layer II audio compression.
♦ Dolby AC-3® audio compression.
♦ MPEG-2 Transport layer processing:
  - ATM and IP compatibility,
  - Multiple stream interleaving,
  - ATSC/HD compatible,
  - Private data insertion.
♦ 12-MByte external SDRAM.
♦ Ideal for PC and embedded system applications:
  - PCI interface,
  - USB interface,
  - Local CPU interface.

iTVC12 Block Diagram

iTVC12 Feature List

Video Encoding
- Supports both MPEG-1 and MPEG-2 encoding formats.
- Variable GOP structure: IBBP, IBP, IP, and I frame only.
- Variable bit rate and constant bit rates.
- Support for DVD encoding.
- Adaptive field/frame/inverse-telecine conversion scheme.
- Motion estimation search range: ± 64 horizontal PEL and ± 32 vertical PEL with up to half-PEL accuracy.
- Flexible, user-programmable DC coefficients and intra-block quantization tables.

Video Interface
- CCIR-656 or CCIR-601 support.
- Support for resolutions up to 720x576 for PAL and 720x480 for NTSC.
- 4:2:2 to 4:2:0 conversion.

Audio Encoding
- Dolby AC-3 two-channel encoding.
- MPEG-1 Layer II audio encoding at 32 KHz, 44.1 KHz, or 48 KHz.
- Programmable bit rate I²S support.

System
- Automatic scene-change detection.
- Elementary, Program, and Transport stream support.
- Private data insertion.
- Frame-accurate start and stop.

System Interface
- Full PCI bus support.
- Support for 8-, 16-, or 32-bit Intel-style microcontrollers.
- Selfboot with external ROM.
- I²C master interface to I²C devices such as video ADCs and TV tuners.

Output Interface Support
- PCI or system bus.
- Parallel and serial outputs.
- Glueless interface to USB controller.

Memory Requirement
- 12-MByte SDRAM, 100-MHz max. speed.

Filtering
- Adaptive temporal and multi-tap spatial filters.

Software/Firmware Support
- Comprehensive API layer to simplify software application development.
- WDM and Win95/98 VxD-based driver.
- WDM driver.
- Application GUI with source code.

Physical Specifications
- 2.5V and 3.3V power supplies.
- 456-ball PBGA.

Ordering Information

PART #	TYPE OF ENCODER
060-002-xxx	iTVC12

GlobeSpan provides complete software support for the iTVC12, including an on-chip API function call layer and binary and source code examples.

GlobeSpan
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