

# TL811

## STB/PVR Controller IC

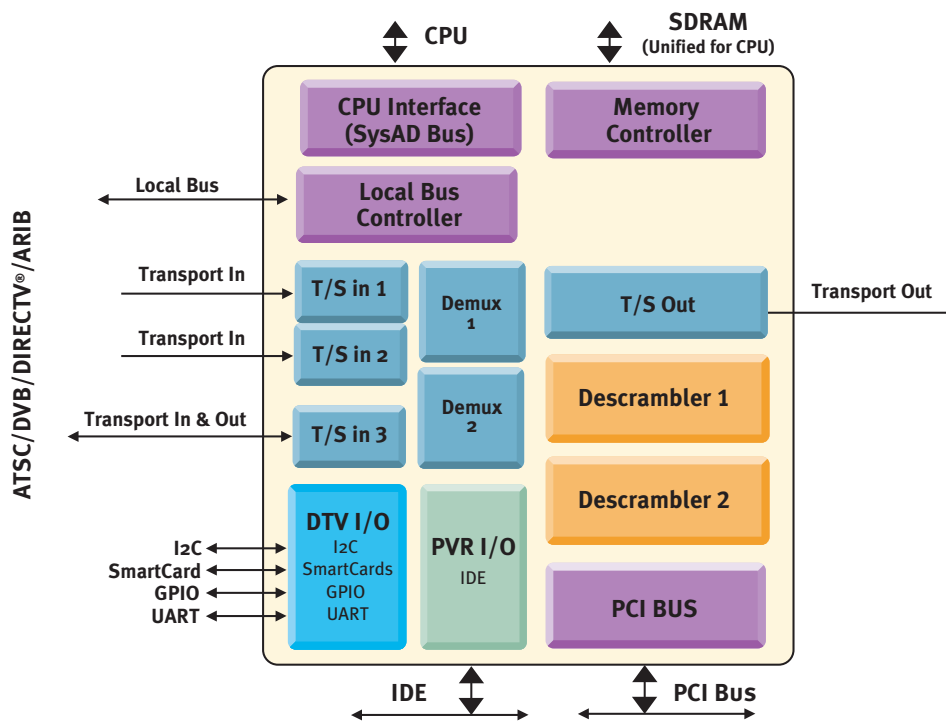
Multiple-transport, multiple-descrambler Controller IC for Consumer Electronic OEMs to manufacture Digital TV sets, Digital Set Top Boxes and Personal Video Recorders

### GLOBAL AND SCALABLE ARCHITECTURE

The STB/PVR Controller IC from TeraLogic is a key element of its global and scalable architecture for Digital TV. It interfaces seamlessly to TeraLogic's Digital TV Decoder ICs to create a versatile solution to design consumer electronics products such as Digital Set-Top Boxes, Digital TV sets and Personal Video Recorders (PVR) for cable, satellite or terrestrial broadcast. These functions are integrated in a single IC – multiple transport demux, descramblers, conditional access, PCI bridge, CPU local bus, I<sup>2</sup>C, SmartCard interfaces, IDE interface, UART and GPIOs. This system-on-a-chip approach provides a very cost-effective solution by eliminating either the need to use discrete solutions or costly ASIC development.

This IC address ES worldwide Digital TV requirements by incorporating four transport streams I/Os and multiple demultiplexers that are compatible with ATSC, ARIB, DVB, and DIRECTV®. The universal appeal of this device is enhanced by the inclusion of DVB, DIRECTV DES-ECB, MPEG DES, Triple DES-CBC and Multi-2 descrambling schemes.

The Controller IC can be used to design next generation PVR devices with advanced features or to upgrade an existing Set-Top Box to include PVR functions. The multiple transport inputs enable consumer-pleasing capabilities such as the ability to simultaneously watch and record or to have digital picture-in-picture on any television set.



TL81X BLOCK DIAGRAM

integrated circuits

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## STB/PVR Controller IC

### APPLICATIONS

- Set-Top Boxes
- Digital TV
- Personal Video Recorders

### SUPPORTING TERALOGIC PRODUCTS

- TL85x Decoder ICs
- Cougar Development Platform

### PROGRAMMABLE TRANSPORT INPUT/DEMULTIPLEXER

- Two dedicated and one bi-directional transport input ports
- One dedicated and one bi-directional transport output ports
- Glueless interface to IEEE 1394 devices
- Two ATSC/DVB/ARIB/DIRECTV compliant demux
- Glueless interface to most front-end ICs
- Maximum input bit rate of 80 Mb/s supported on each port
- Ability to transfer multiple SD streams to the TeraLogic DTV Decoder for SD PIP applications

### DESCRAMBLERS

- DVB, DIRECTV DES-ECB, MPEG DES, Triple DES-CBC, Multi-2 descrambling supported
- Simultaneous descrambling of two streams supported
- All three transport input ports can access the descramblers
- Bypass mode of transport streams supported

### CPU INTERFACE

- Glueless interface to MIPS CPUs such as QED RM5231, NEC VR5432
- 32-bit wide multiplexed address/data supported
- Write and Read posting buffers between CPU and external resources (PCI, memory bus and local bus).

### LOCAL BUS

- Generic bus interface (16-bit data and 24-bit address bus)
- 6 Pre-decoded, programmable chip selects
- Can be configured to be fixed 8-bit only, or 8- and 16-bit width device support

### IDE ULTRA DMA INTERFACE

- Supports one IDE connector for up to 2 IDE drives
- Ultra DMA specifications allows 66 MByte transfer rate

### SDRAM INTERFACE

- 32-bit wide SDRAM interface
- Supports 16/64/128-Mbit SDRAM devices

### PCI BUS INTERFACE

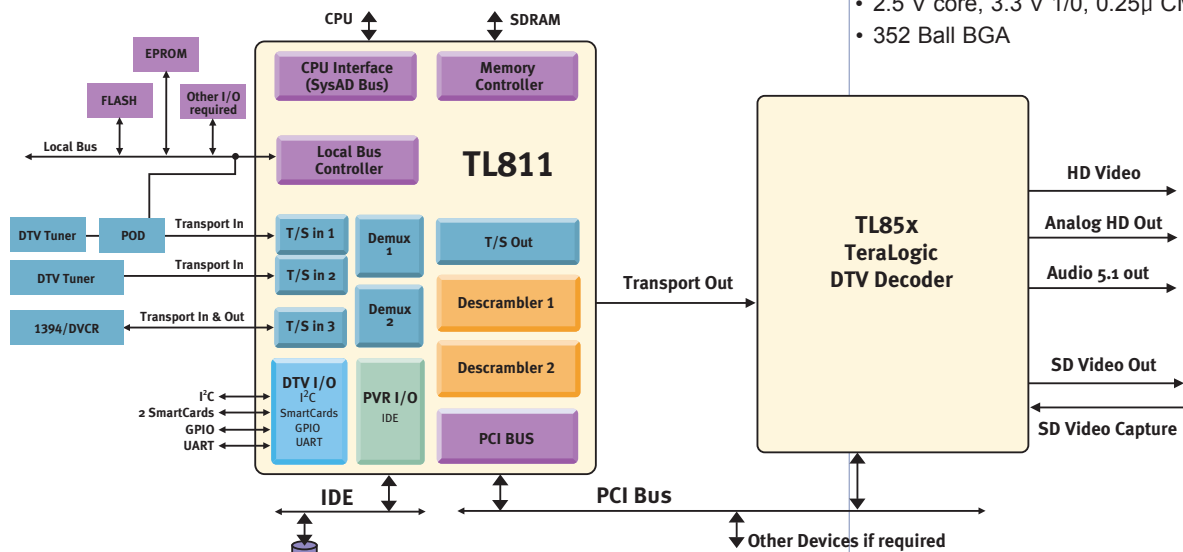
- 32-bit PCI 2.1 compliant interface
- 50 MHz or 33 MHz bus clock
- PCI Master/Slave/Arbiter capability supported
- Supports burst transfers for efficient data movement

### PERIPHERALS

- Two ISO-7816 smart card interfaces
- Four Asynchronous UART
- Two I<sup>2</sup>C compatible master and slave ports
- Three 32-bit timers/counters
- NRSS-A/NRSS-B support
- User-configurable general purpose I/Os

### TECHNOLOGY

- See grid below for packaging
- 2.5 V core, 3.3 V I/O, 0.25μ CMOS
- 352 Ball BGA



TL811 SYSTEM DIAGRAM



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