



TECHNOLOGY THAT
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ISI-736

1394a (aka Firewire) Mixed-Signal Single-Port PHY

IEEE 1394

IEEE 1394 is a high-speed serial bus standard that allows video and audio consumer devices to communicate quickly, reliably, and inexpensively with a PC and with each other.

FlexFire™ Architecture

Innovative Semiconductors' FlexFire architecture is based on a set of parameterized building blocks that can be quickly and easily configured to support a wide range of 1394 applications. The FlexFire 1394a family includes general purpose and application-specific cores for Link Layer Controllers as well as a PHY.

FlexFire offers a fast and convenient way to incorporate Firewire capabilities into products such as digital cameras, set-top-boxes, audio/video devices, disk controllers, and other PC peripherals.

Functional Blocks

The ISI-736 includes both the analog and digital logic for a 1394a-compliant PHY Layer controller, and is capable of operating at transfer rates up to 400 Mbits/sec. The digital portion of the ISI-736 implements the arbitration and decoding logic and synchronizing FIFO, and is available in synthesizable RTL. The analog portion implements the transmit and receive circuits, and can be ported to commercially-available digital CMOS processes of .35μ or smaller.

The ISI-736 is compatible with Innovative's line of 1394a-compliant Link Layer cores. Together, with low level drivers, they provide a complete 1394 solution. The ISI-736 includes a comprehensive test bench, validation suite, synthesis scripts, and user documentation.

Features

- Compliant with IEEE 1394a v2.0 specification
- Interoperates with 1394-1995 devices
- Supports 100, 200, and 400 Mbits/sec transfer rates
- Integrates easily with Innovative's line of application-specific Link Layer cores
- Supports 1394a advanced power management
- Supports all 1394a arbitration and concatenation enhancements
- Proprietary skew management techniques ensure timing is met with margin even at .35u.
- Extensive testing including IDDQ, alternate frequency operation, ultra-slow operation, precise clock control, scan, and on-Tester Transceiver Transmit/Receive Mode

PRODUCT BRIEF

FlexFire™ 1394a Core Family

- **ISI-755:** *General purpose Link*
- **ISI-758:** *Link compatible with Texas Instrument's GPLynx™*
- **ISI-760:** *1394a Link with DMA*
- **ISI-770:** *Audio/Video Link with 5C encryption*
- **ISI-736:** *1394a Single Port Cable PHY*
- **ISI-738:** *1394 Backplane PHY*