



# LAN9131



## High-Performance Multimedia Co-Processor, Featuring RipStream™ Technology

Industry's first high-performance, wired 10/100 network multimedia co-processor employing RipStream technology, which combines support for multiple high-definition (HD) streams, a software protocol stack management and security. The LAN9131 co-processor allows system designers to leverage existing SoC and host processor-based designs that support Digital Living Network Alliance™ specifications with minimal design risk and fast time-to-market.

### Highlights

- RipStream technology supporting DLNA guidelines
  - Supports multiple HD video streams
  - Built-in UPnP, HTTP, TCP/IP protocol stack
  - Integrated 128-bit AES encryption/decryption for Digital Rights Management (DRM)
    - Supports Windows® Media DRM10 (WMDRM 10)
    - Supports Digital Transmission Content Protection over Internet Protocol (DTCP-IP)
    - Fast DTCP-IP AKE key exchange time (0.6 sec.)
- Two Transport Stream Interfaces (TSIs) to MPEG encoder/decoder SoCs
  - Either interface can be used in server or rendering applications
- Video codec agnostic
  - Supports MPEG2, MPEG4, WMV9/VC-1, H.264/AVC
- Integrated ARM926™ core
- Integrated 10/100 MAC/PHY with HP Auto-MDIX and multiple power management modes
- TCP/UDP checksum offload

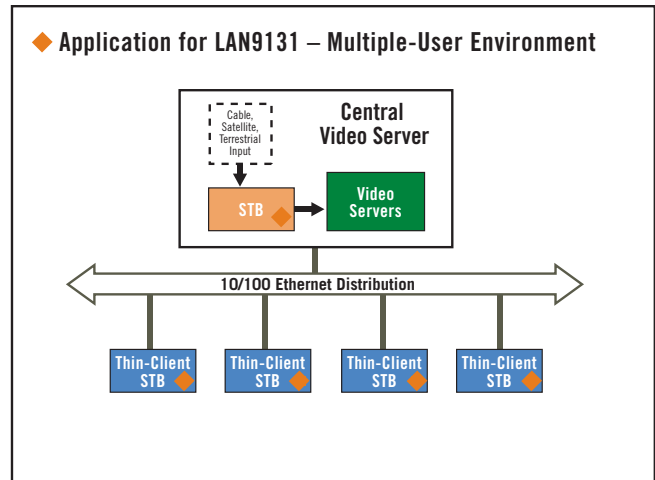
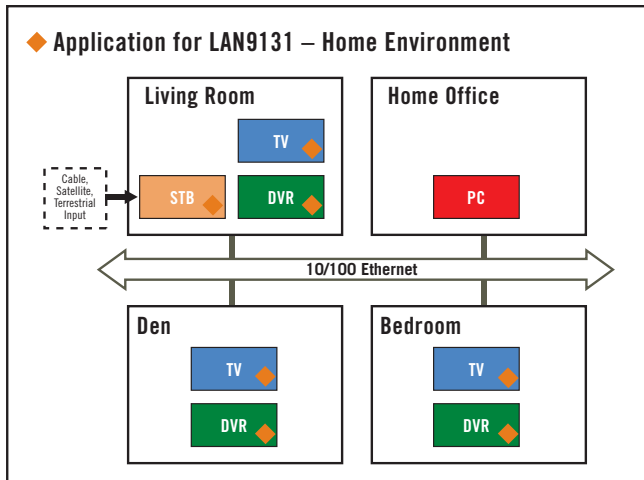
### Target Applications

- Ethernet-based Video/Media Distribution Systems
- Digital Video Recorders
- High-definition Televisions
- Video Servers
- NAS (Network Attached Storage)
- Thin Client Set-top Boxes
- Digital Media Clients/Servers
- Home Gateways

### Features and Benefits

FEATURES	BENEFITS
RipStream technology combines support of multiple HD streams, software protocol stack management and security	High throughput; two HD MPEG2 or multiple MPEG4 streams
Two bidirectional TSI ports which directly interface to video processing functions	Overcomes system host bus limitations. High bandwidth audio/video HD streams can be handled without burdening system host bus. Ports support extended modes with flow control and allow transfer of non-MPEG2 TS formats.
Integrated 10/100 MAC/PHY with HP Auto-MDIX	Complete networking solution that eliminates the need for special "crossover" cables when connecting LAN devices together
Crypto block supports both DTCP-IP and WMDRM 10	Provides DRM copyright protection. Flexible support for major industry standards; eliminates need for separate crypto device.
Video codec agnostic	Handles any video codec (MPEG2, MPEG4, WMV9/VC-1, H.264/AVC)
Can boot from Flash memory or host processor	Reduces need for additional components
Integrated DLNA, UPnP and TCP/IP stacks	Consumer Electronics interoperability; ability to recognize other UPnP devices and offload host TCP/IP implementation
Highly flexible software architecture; customer can decide whether LAN9131 or host runs UPnP stack	Allows ease of integration to various architectures; allows system designer to optimize the architecture to application needs

# Network Multimedia Co-Processor Applications



## Feature and Performance-Rich

- 128-bit AES encryption/decryption
- RipStream technology provides the high-performance Ethernet data rates required to enable multiple HD streams
- TSI port can be used in server and rendering applications
- Interoperability with other UPnP-based and DLNA-compliant devices

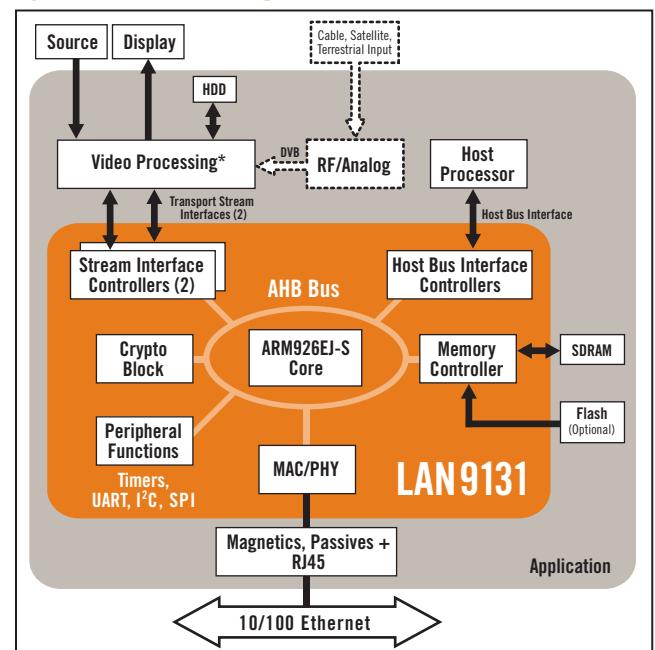
## Ease of Integration/Minimized Design Time and Risk

- Interfaces to any host/SoC via local interface
- Interfaces to any video coder/decoder via TSI
- Minimal host/SoC overhead
- Integrated TCP/IP stack reduces host processor overhead
- Minimal software development required

## Specifications

- ARM926 integrated CPU with separate 16kbyte I- and D-caches
- 16MB SDRAM required, 32MB suggested, up to 256MB SDRAM optional
- 16/32-bit generic host bus interface connects to multiple host processors
- TSI interfaces – Serial and 8-bit Parallel modes supported
- 128-bit AES encryption/decryption
- Integrated 802.3 (10/100) Ethernet MAC/PHY with HP Auto-MDIX support
- Programmable timers, UART, I2C and SPI interfaces
- 324-pin LFBGA package
- Commercial temperature range applications (0°C to 70°C)

## System Block Diagram



\* Depending on the application, video processing can include a video decoder or encoder, MPEG PID filter or other conversion functions

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