



## EN2210 Coaxial Network Controller

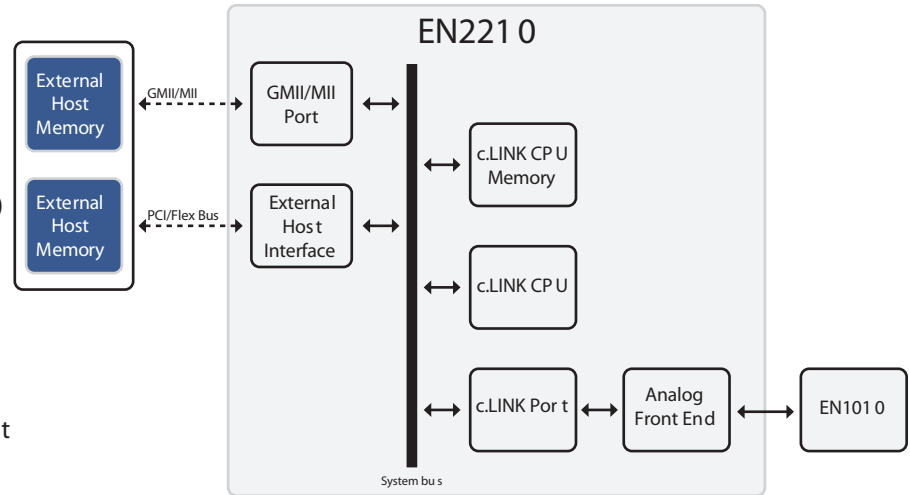
The EN2210 Coaxial Network Controller is the newest addition to Entropic's c.LINK™ chipset dedicated to allowing a complete coaxial networking solution for the distribution of multiple high definition and standard definition video, digital, voice and broadband data.

The EN2210 combines increased host interface flexibility with reduced power consumption and lower system integration costs. Working together with the EN1010 Coaxial Network Interface, the chipset operates at radio frequencies from 800 to 1500 MHz, enabling compliance to the Multimedia over Coax Alliance (MoCA) specification. Based on Entropic's c.LINK protocol, the core technology chosen by MoCA, the EN2210 enables secure and robust communication using existing home coaxial cables without the need for new wiring or modifications. MoCA members include cable, telco and satellite operators, set-top box OEMs, network equipment OEMs and consumer electronics OEMs worldwide.

Building on the success of the first generation product, the EN2210 offers added interface flexibility and lower power

consumption, making it ideal for cost sensitive and high performance embedded applications such as media servers, home entertainment gateways, multi-room digital video recorders and network capable set-top boxes. Through the standard GMII/MII port, the EN2210 can be configured to operate as an equivalent Ethernet PHY device with no additional host connections. Coupled with the FlexBus and PCI interfaces, the EN2210 is designed to support a variety of host controllers.

The EN2210 also boasts an enhanced feature set, which includes support for parameterized QoS and packet aggregation facilitating a 50% increase in data rate. With these improvements, Entropic continues to advance coaxial-based home networks.



System Block Diagram

## Applications

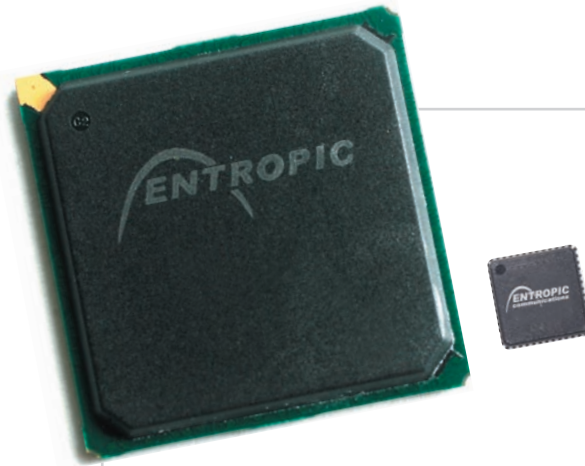
- Multi-room HDTV DVR
  - PC to TV content sharing
  - Home media server with thin clients
  - Every room access to all digital content
- Media gateway
- Broadband routers
- Multi-room gaming
- Wi-Fi extenders
- Optical network terminals
- Easily shares video and data files through a managed and trusted home network

## Benefits

- Seamlessly links consumer entertainment devices from room to room using existing coax wiring
- Better than 250 Mbps through coaxial cable
- Reliably accesses and distributes digital video content, including multiple streams of HDTV
- Enables retail set-top box solution with no professional installation required
- Supports streaming media, including audio, SDTV and HDTV – without compromise

## Features

- Enables MoCA 1.0 compliance
- Fully integrated c.LINK MAC/PHY for coaxial networks
- Data capacity of at least 250 Mbps for multiple simultaneous HDTV and SDTV video streams
- Hardware DES encryption for network privacy
- Improved MAC efficiency with packet aggregation (>150 Mbps MAC rate)
- Software Development Kit (SDK), driver source code and standard APIs allow easy product integration
  - o Drivers for Linux OS environment
  - o Diagnostic applications
  - o mPCI & MII/FlexBus dev platforms
- Interfaces
  - o Media independent interface - MII & GMII
  - o Over clocked MII (50 MHz, 200 Mbps)
  - o PCI v2.2
    - Master or slave device mode
  - o Flexbus
    - 16 or 32 bit data
    - 16-24 bit address
    - Synchronous or asynchronous clock
    - Slave operation
- Operating modes
  - o PCI or FlexBus
  - o GMII/MII + FlexBus
  - o GMII/MII only (PHY mode)
- Compatibility
  - o IEEE 802.1p



## Solution Details

The c.LINK chipset is a two-chip set:

- EN1010: Coaxial Network Interface
- EN2210: Coaxial Network Controller

- Network Characteristics
  - o Rate adaptation from 20 to 250 Mbps
  - o Constant-delay and low-latency network
  - o TDMA/TDD-fully coordinated MAC, no collisions
  - o Frequency selection for efficient bandwidth utilization
  - o Support up to eight nodes per c.LINK network
  - o Packet aggregation support for increased data rate
  - o Parameterized Quality of Service (QoS)
  - o Centralized network management and control
- Electrical and Physical Characteristics
  - o 3.3-V I/O, PCI interface (3.3-V/5.0-V)
  - o 1.2 V, 1.8 V, 3.3 V (power supply)
  - o 1.5 W (max) power consumption
  - o 324-PBGA

## Product Reference Information

Number	Description
EN2210	Home Networking Network Controller Integrated Circuit
EN1010	Coaxial Network Interface RF Integrated Circuit
EN92210SDK	c.LINK Linux Home Networking Software Development Kit (SDK)
EN92010EVK	c.LINK Home Network Evaluation Kit (EVK)

### MoCA Founding Member

Entropic is a founding member of the Multimedia over Coax Alliance (MoCA), formed to standardize technologies for linking consumer entertainment devices – such as TVs, digital set-top boxes, digital video recorders, DVDs, digital VHS, CD/MP3 players and PCs – seamlessly throughout the home using its existing coax cabling. Other MoCA founding members include Cisco Systems, Comcast, EchoStar, Matsushita Electric (Panasonic), Motorola, RadioShack Corporation and Toshiba. MoCA certification will ensure that an entire product portfolio is compliant with today's technology standards – the most efficient way to seamlessly incorporate entertainment home networking into a branded set of products and solutions for the digital home.