Marvell Link Street 88E6350R/88E6350

7 Port AVB Gigabit Ethernet Switch
with 5 Integrated 10/100/1000 PHYs

▶ PRODUCT OVERVIEW

The Marvell® Link Street® 88E6350R/88E6350 devices are single-chip, 7-Port Gigabit Ethernet Switches with five integrated Gigabit Ethernet transceivers supporting the latest IEEE802.1 Audio Video Bridging (AVB) standards. These new AVB standards overcome the latency and bandwidth limitations of Ethernet to allow for the efficient transmission of real-time audio and video over Ethernet for home or commercial applications. These devices use the AVB technologies to identify and reserve the network resources for AVB traffic streams and supports precise isochronous streaming capability for reliable and quality audio/video transmission over Ethernet for today's real-time, high definition information and entertainment options. The AVB protocols enable timing sensitive multimedia streams (such as digital video, audio or industrial control traffic) to be sent over the Ethernet network with low latency and robust quality of Service guarantees.
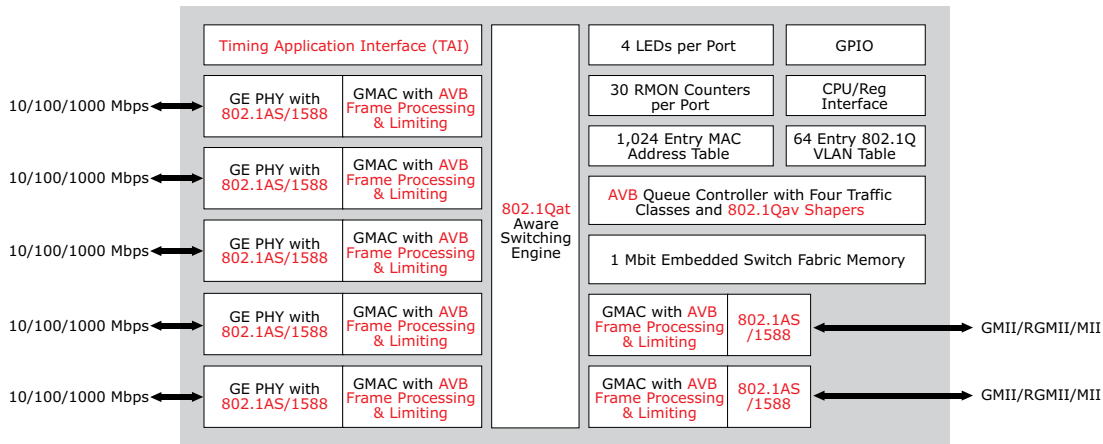
▶ BLOCK DIAGRAM

Fig 1. Block Diagram

▶ KEY FEATURES AND BENEFITS

FEATURES	BENEFITS

• High performance, non-blocking, 7-port Gigabit Ethernet Switch fabricated on 65nm process, integrating:
  - Five 10/100/1000 PHYs with Advanced Virtual Cable Tester (VCT) diagnostic features
  - Two GMII/RGMII/MII interfaces (GMII available on 88E6350 only)
  - 88E6350R packaged in 128-QFP (14x14mm), 88E6350 packaged in 176-QFP (20x20mm)
	• Provides a complete Gigabit Ethernet switching solution for low port count applications. The GMII/RGMII/MII interfaces provide glueless connectivity to a CPU, WLAN, or broadband PHY (xDSL, DOCSIS, HPNA, MoCA, etc.)
	• Offers the smallest footprint Gigabit switch in the market with a 14x14mm 128-QFP package.
	• Pin compatible with previous generation 88E6171R/88E6171 devices

• Supports 802.1 Audio Video Bridging (AVB) Standards
  - 802.1AS – Precise Timing Protocols
  - 802.1Qat – Stream Reservation Protocol
  - 802.1Qav – Egress Pacing and Jitter Tolerance
	• Provides the latency, bandwidth and Quality of Service guarantees required to deliver today's multimedia entertainment and information over the Ethernet network.

• Quality of Service (QoS) support with four traffic classes - QoS determined by 802.1p, port, Source or Destination MAC address, 802.1Q VLAN ID, Frame Type (e.g., ARP, Ethertype, etc.), IPv4 Type of Service (TOS), Differentiated Service (DiffServ), or IPv6 Traffic Class	• Best in Class QoS features enable prioritization of all types of traffic (e.g. video, voice, data) to ensure efficient use of network bandwidth. Provides guaranteed delivery of time-sensitive Audio/Video content when used in conjunction with AVB standards.

• Advanced Features
  - High performance switch fabric with support for up to 1K MAC addresses
  - Supports 10KByte Jumbo Frames
  - Best in class per port ingress rate limiting and broadcast storm prevention (2 rate limiters per port)
  - Per port egress rate shaping
  - Four LEDs per port
	• Provides high-speed, non-blocking, Gigabit performance for cost sensitive consumer applications. Advanced rate limiting, egress shaping and storm prevention improve traffic management and network performance, and reduce unwanted flooding of ports.
	• Glueless interface for up to 20 LEDs (4 per port) including special LED functions, including WAN or LAN link/activity indication by combining the link/activity indication of 1 or more ports to a single LED function.

FEATURES	BENEFITS

• Management and Security:
  - Supports 64 802.1Q VLANs
  - Supports 802.1D/s/w Spanning Tree Protocols
  - IPv4 IGMP and IPv6 MLD snooping
  - 802.1x MAC Authentication
  - Remote (In-band) Management
	• Built-in network management and security features, support fully managed switches and truly isolated WAN vs. LAN firewall applications. The device supports 64 802.1Q VLAN IDs, which can be enabled on a per port basis.
	• Three levels of 802.1Q security is supported with error framed trapping and logging.

APPLICATIONS

The Marvell Link Street 88E6350R/88E6350 are the industry's first SOHO Ethernet switch chips to support IEEE's AVB standards. Built upon the simplicity, flexibility and affordability of Ethernet, these AVB devices are not limited to just consumer applications, but also support a variety of multimedia delivery options for the following applications:

- **Home networking and service providers**- entertainment, communications and monitoring for media connectivity of all consumer electronics devices including DVD, DVR, set top box (STB) and DTV video applications; AVR and speaker audio applications; plus guaranteed delivery of VoIP services throughout the home.

- **Enterprise/professional/commercial**- supporting manufacturing and assembly lines, industrial network switches, power line synchronized networks and test measurement devices, as well as public AV terminals such as conference halls, performance stages, airports, hotels, restaurants, theme parks, hospitals and government offices.

- **Cellular base station backhaul**- for replacement of SONET/SDH timing.

- **Automobile and transportation**- monitoring and network control, entertainment and information displays for navigation, music, DVD and displays.

Marvell makes designing for AVB easier with a full list of features and performance to bring a low-latency, high quality audio and video experience over Ethernet.
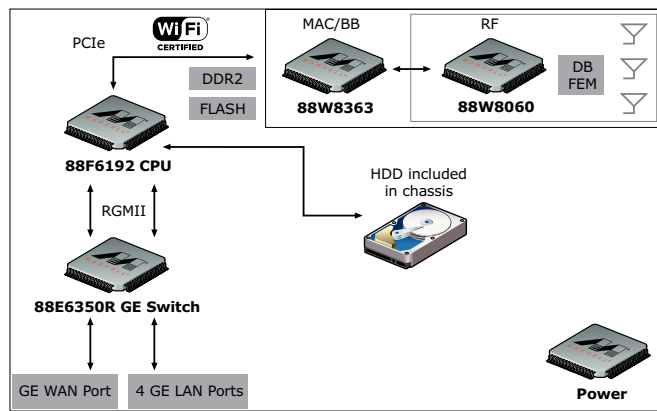

Fig 2. Gateway Router Application Diagram

THE MARVELL ADVANTAGE: Marvell chipsets come with complete reference designs which include board layout designs, software, manufacturing diagnostic tools, documentation, and other items to assist customers with product evaluation and production. Marvell's worldwide field application engineers collaborate closely with end customers to develop and deliver new leading-edge products for quick time-to-market. Marvell utilizes world-leading semiconductor foundry and packaging services to reliably deliver high-volume and low-cost total solutions.

ABOUT MARVELL: Marvell is a leader in storage, communications, and consumer silicon solutions. Marvell's diverse product portfolio includes switching, transceiver, communications controller, processor, wireless, power management, and storage solutions that power the entire communications infrastructure, including enterprise, metro, home, storage, and digital entertainment solutions. For more information, visit our Web site at www.marvell.com.