

# Marvell Alaska 88E1112

10/100/1000 Gigabit Ethernet Transceiver with Auto-Media Detect



## ▶ PRODUCT OVERVIEW

The Marvell® Alaska® 88E1112 Gigabit Ethernet (GbE) transceiver is a fully compliant IEEE 802.3 physical layer device for Ethernet 1000BASE-T, 100BASE-TX, and 10BASE-T applications, with additional functionality of 1000BASE-X and 100BASE-FX in SFP applications. The 88E1112 supports the SGMII (Serial Gigabit Media Independent Interface) to connect to the MAC or switch.

The 88E1112 offers the unique capability of auto-media detect. On the line side, in addition to supporting standard copper applications on Cat 5 twisted pair cable, the 88E1112 incorporates an additional SERDES (serializer/deserializer) that can operate at 1.25 GHz for connection to a fiber-optic transceiver for 1000BASE-X applications, or 125 MHz operation for 100BASE-FX applications. The 88E1112 is also an ideal device for media-conversion applications that require SERDES/fiber-to-SGMII conversion.

The full flexibility of the 88E1112 enables multiple applications:

- Simple copper connections for line-side 1000BASE-T, 100BASE-TX, and 10BASE-T applications.
- Auto-media detect for direct multimedia support in uplink applications. The end consumer may opt to plug in a RJ45 copper connection or an SFP module for copper or fiber 1000BASE-X/100BASE-X connection to the same PHY port.
- Multiple SFP module implementations with a single 88E1112 device to target Copper SFP (10/100/1000BASE-T) and Fiber SFP (1000BASE-X/100BASE-FX) applications.
- Media converter applications from fiber transceivers to copper and fiber to SGMII.

The 88E1112 also incorporates Marvell's Virtual Cable Tester (VCT™) technology for diagnosing cable faults that include opens, shorts, and impedance mismatches.

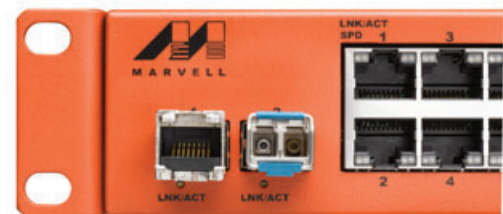
Housed in a small, 64-pin QFN package, the 88E1112 requires only two power supplies and is offered in both commercial and industrial grade temperatures.

## ▶ APPLICATIONS

The Alaska 88E1112 10/100/1000 Mbps Ethernet PHY offers an integrated, flexible solution for system level or SFP module applications. Supporting both copper and fiber media applications, with additional SFP module support, the 88E1112 is a key ingredient for any type of SGMII/SERDES/copper combination application. The small footprint facilitates SFP module applications, while the auto-media detect capability offers flexible media support.



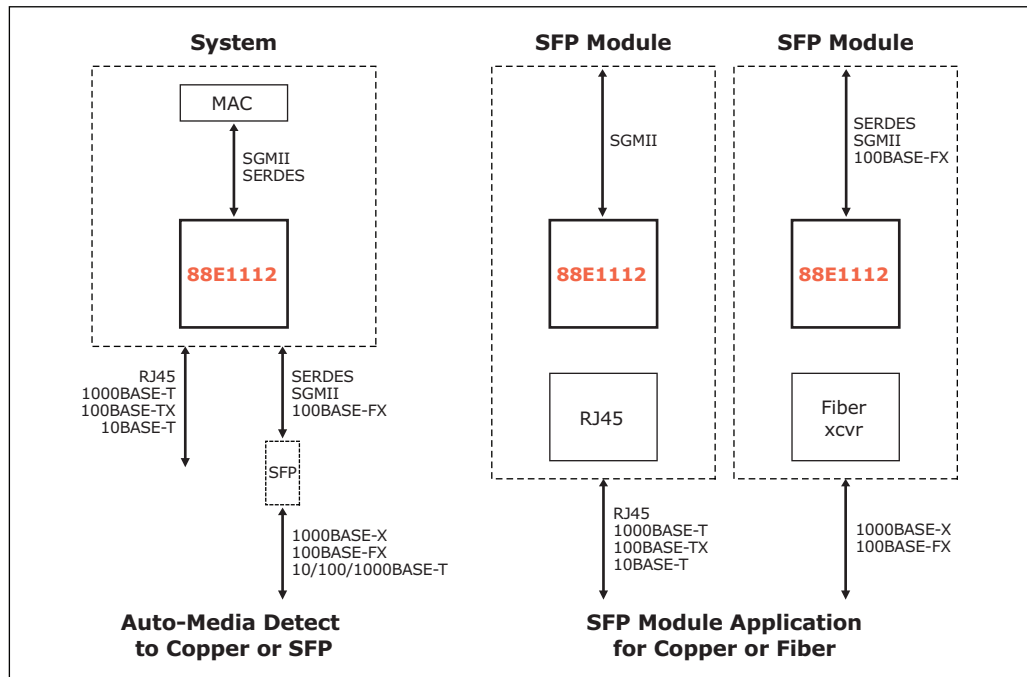
SFP modules: copper and fiber



Auto-Media detect UpLink for copper or fiber

▶ FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>• SGMII/SERDES MAC side support</li> <li>• Auto-media support to fiber applications with same PHY</li> </ul>	<ul style="list-style-type: none"> <li>• Compatible mode with industry standard interface</li> <li>• Low pin count</li> <li>• Flexibility on MAC side interface applications (MAC or SFP/GBIC)</li> <li>• Single-chip solution for 10/100/1000 Mbps copper, 1000BASE-X/100BASE-FX, or SFP module applications</li> </ul>
<ul style="list-style-type: none"> <li>• SFP Module Support                             <ul style="list-style-type: none"> <li>– Copper and fiber SFP modules</li> <li>– Support for embedding into copper SFP modules</li> </ul> </li> <li>• Additional integrated SERDES switchable to 1.25 GHz or 125 MHz</li> </ul>	<ul style="list-style-type: none"> <li>• Flexible board-level module support                             <ul style="list-style-type: none"> <li>– Auto-media detect flexibility to copper or fiber media</li> <li>– Single PHY for multiple SFP module implementations: 10/100/1000BASE-T or 1000BASE-X or 100BASE-FX</li> </ul> </li> <li>• Enables support for both 1000BASE-X and 100BASE-FX applications</li> </ul>
<ul style="list-style-type: none"> <li>• Advanced diagnostics capability                             <ul style="list-style-type: none"> <li>– Marvell VCT</li> <li>– Integrated CRC error checker, packet counter and generator</li> </ul> </li> <li>• Small 64-pin QFN package</li> </ul>	<ul style="list-style-type: none"> <li>• Flexible diagnostics option for validation and cable-fault detection</li> <li>• Ideal for copper SFP applications</li> </ul>
<ul style="list-style-type: none"> <li>• Requires only two power supplies</li> <li>• Industrial temperature support</li> </ul>	<ul style="list-style-type: none"> <li>• Lowers overall BOM cost</li> <li>• Support for extreme temperature requirements</li> </ul>

▶ SYSTEM/APPLICATION BLOCK 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. For more information, visit our Web site at [www.marvell.com](http://www.marvell.com).

**ABOUT MARVELL:** Marvell is a leader in storage, communications and consumer silicon solutions. Marvell’s diverse product portfolio includes switching, transceiver, communications controller, processors, wireless, power management and storage solutions that power the entire communications infrastructure, including enterprise, metro, home, and storage networking.



Marvell Semiconductor, Inc.  
5488 Marvell Lane  
Santa Clara, CA 95054  
Phone 408.222.2500  
[www.marvell.com](http://www.marvell.com)

Copyright © 2008. Marvell International Ltd. All rights reserved. Marvell, the Marvell logo, Moving Forward Faster, Alaska, Datacom Systems on Silicon, Fastwriter, Libertas, Link Street, NetGX, PHYAdvantage, Pretera, Raising The Technology Bar, The Technology Within, Virtual Cable Tester, and Yukon are registered trademarks of Marvell. Marvell Makes It All Possible, Ants, AnyVoltage, Discovery, DSP Switcher, Feroceon, GalNet, GalTis, Horizon, RADLAN, UniMAC, and VCT are trademarks of Marvell. All other trademarks are the property of their respective owners.