ChronoPHY™ Ethernet Transceivers

10GBASE-T/5GBASE-T/2.5GBASE-T/1000BASE-T/100BASE-TX Physical Layer Ethernet Transceivers

Description

The ChronoPHY™ series of multi-rate 10GBASE-T / 5GBASE-T / 2.5GBASE-T / 1000BASE-T / 100BASE-TX Ethernet PHY transceivers offer extended reach, great interference immunity, advanced timing features with great power efficiency. Designed to elevate network performance, these PHYs are ideally suited for applications upgrading from Gigabit ethernet to higher speeds such as 2.5G, 5G, and 10G using CAT6A or existing CAT5e cabling. Typical applications include broadband access, computing, and a wide range of industrial applications.

Designed with Aeonsemi's advanced timing and DSP architecture, the ChronoPHY™ series takes robustness, ease of use and synchronization precision to the next level. It seamlessly integrates IEEE1588v2 functions with easy interface to controllers. To minimize system cost while maintaining performance, the PHYs come with built-in jitter filtering, and an any-rate low jitter clock output empowering the latest networks. With 1 nanosecond time stamping accuracy at the wire, and minimal latency variation, these transceivers can enable Precision Time Protocol (PTP) implementations to achieve system synchronization precision of less than 1ns.

The ChronoPHY™ series are available in 2 small packages, 7x7mm BGA81 and 11x11mm BGA169 and support –40°C to +85°C operation.

Block Diagram
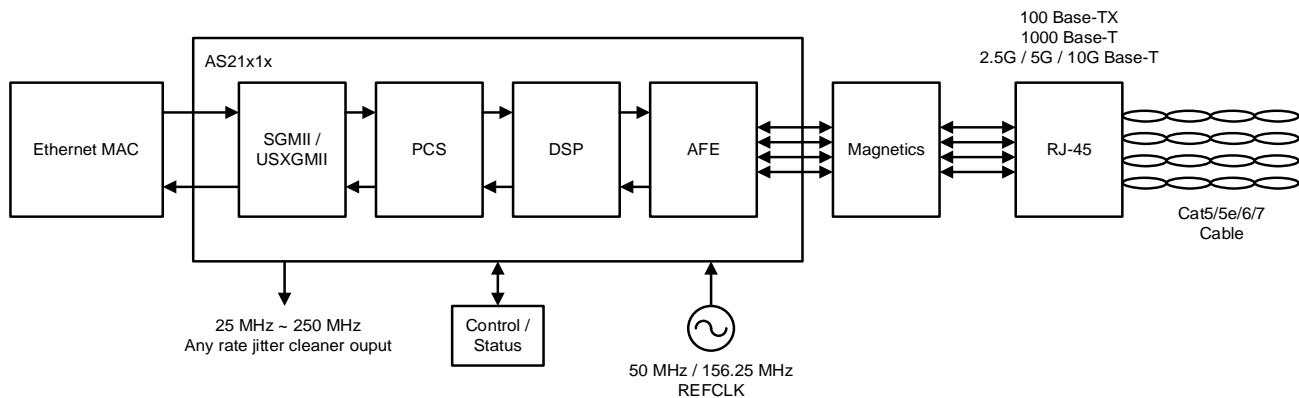
Key Features

Features	Benefits
IEEE 802.3an/bz and NBASE-T speeds with advanced timing architecture	Ability to support 10G/5G/2.5G/1000/100Base-T ethernet with extended reach, lowest latency and lowest BOM cost.
Energy Efficient Ethernet (EEE)	Reduced power consumption and improved latency performance.
Dual media support with two SERDES options	Single design for both copper and fiber interfaces for lower cost and higher flexibility.
Wake-on-LAN Magic packet detection	Ability to wake a remote connection for convenience and energy efficiency.
Auto-Negotiation with Extended Next Page capability (XNP)	Enables devices to automatically negotiate the best possible speed and duplex settings for their connection which improves performance and reliability while reducing the amount of time it takes for devices to connect.
IEEE fast retrain and link monitoring	Overall network reliability improvement through reduction and correction of link errors.

Ordering Codes

Part Number	Description	Package
AS21011J	10Gbps / 5Gbps / 2.5Gbps / 1Gbps / 100 Mbps, Integrated SyncE jitter filter PLL, Any fractional frequency SyncE output clock from 25MHz to 250MHz	11 x 11mm
AS21010J	10Gbps / 5Gbps / 2.5Gbps / 1Gbps / 100 Mbps, Integrated SyncE jitter filter PLL, Any fractional frequency SyncE output clock from 25MHz to 250MHz	7 x 7mm
AS21010P	10Gbps / 5Gbps / 2.5Gbps / 1Gbps / 100 Mbps	7 x 7mm
AS21510P	5Gbps / 2.5Gbps / 1Gbps / 100 Mbps	7 x 7mm
AS21210P	2.5Gbps / 1Gbps / 100 Mbps	7 x 7mm

Target Applications

• Wireless access point
• O-RAN small cell
• 10G PON ONU and broadband access CPE
• Network switches, servers, storage
• SFP+ modules