Release Date: 06/17/2022
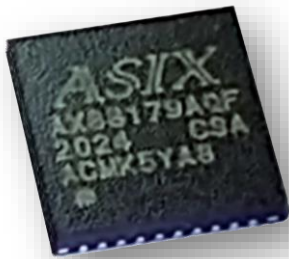
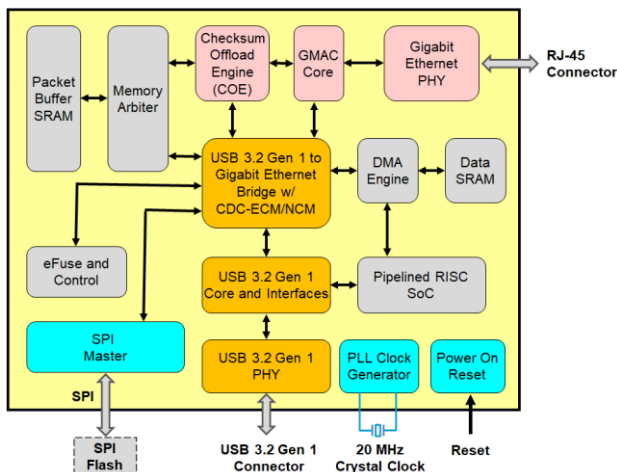# USB 3.2 Gen 1 to Gigabit Ethernet Controller

The AX88179A is a USB 3.2 Gen 1 to Gigabit Ethernet controller with integrated 10M/100M/1000M Gigabit Ethernet PHY. AX88179A supports Windows 11/10/8.x, Linux/Android/Chrome OS, Nintendo Switch in-box drivers, and macOS/Linux native CDC-NCM driver for driverless, Plug & Play.

The AX88179A is an easy-design, small form factor and cost-efficient solution, which adapts to any platforms required to support Gigabit Ethernet network connectivity via USB port and is suitable for Desktop/Notebook/POS, USB Ethernet dongles, docking stations, smart mobile device cradles, game consoles, smart camera/IP STB, 5G/LTE router/gateway, etc. smart home/office applications.

Key Features

- **Single chip USB 3.2 Gen 1 to Gigabit Ethernet Controller with Integrated 10M/100M/1000M Gigabit Ethernet PHY**
- **USB Device Controller**
  - Integrates on-chip USB Type-C 3.2 Gen 1 PHY and controller compliant to USB Spec 3.2 Gen 1, 2.0 and 1.1
  - Supports all USB 3.2 Gen 1 power saving modes (U0, U1, U2, and U3)
  - Supports USB Super/High/Full Speed modes with Bus-power or Self-power device
- **Gigabit Ethernet Controller**
  - Integrates 10M/100M/1000M Gigabit Ethernet MAC/PHY, compliant to IEEE 802.3, 802.3u and 802.3ab
  - Supports CDC-NCM, CDC-ECM
  - Supports IEEE 802.3az (Energy Efficient Ethernet, EEE)
  - Supports AUTO-MDIX, flow control (IEEE 802.3 Annex.31B)
  - Supports IPv4/IPv6 Packet Checksum Offload Engine (COE)
  - Supports TCP Large Send Offload V1/V2
  - Supports up to 9K Jumbo Frame
  - Supports IEEE 802.1Q VLAN tagging and 4096 VLAN ID filtering; received VLAN tag (4 bytes) can be stripped off or preserved
  - Supports IEEE 802.1P L2 Priority Encoding and Decoding
  - Supports manageability L2 filter
  - Supports TCO filter, L3/L4 IP/Port filter
  - Supports Second DA RX filter with bit mask
- **Wake-on-LAN Functions**
  - Supports suspend mode and remote wakeup via link-change, Magic Packet, Microsoft wakeup frame and external wakeup pin
  - Supports Bonjour Wake-on-Demand
  - Supports Wakeup Packet Indication
  - Supports Microsoft Modern Standby
- **Advanced Power Management Features**
  - Supports power management offload (ARP & NS)
  - Supports ECMA-393 ProxZzzy® for sleeping hosts
- **Precision Time Protocol (PTP)**
  - Supports IEEE 1588v2 and 802.1AS
- **Supports Windows 11/10/8.x, Linux/Android/Chrome OS, Nintendo Switch in-box drivers, and macOS/Linux native CDC-NCM driver for driverless, Plug & Play**
- **Supports embedded eFuse for die identifier and store the USB Device Descriptors, Node-ID, etc.**
- **Supports SPI Flash for firmware customization**
- **Single 20 MHz crystal clock source**
- **Integrates on-chip power-on reset circuit**
- **40-pin QFN, 5x5 mm package**
- **Operating Temperature Range: 0 to +70°C**

Block Diagram

Target Applications

- Desktop/Notebook/POS
- USB Ethernet Dongle for Ultrabook /Table/Smart Phone/etc.
- Docking Station, Cradle
- Game Console
- IP STB, Smart Camera, Smart TV Box, etc.
- 5G/LTE Router/Gateway
- Embedded Systems with USB Host Interface