



AX88772C

USB 2.0 to 10/100M Fast Ethernet Controller with Microsoft AOAC Support

Features

- Single chip USB 2.0 to 10/100M Fast Ethernet controller
- Single chip USB 2.0 to RMI, support HomePNA and HomePlug PHY
- Single chip USB 2.0 to Reverse-RMII, supports glueless MAC-to-MAC connections
- **USB Device Interface**
 - Integrates on-chip USB 2.0 transceiver and SIE compliant to USB Spec 1.1 and 2.0
 - Supports USB Full and High Speed modes with Bus-Power or Self-Power capability
 - Supports 4 endpoints on USB interface
 - Supports AutoDetach power saving, Detach from USB host when Ethernet cable is unplugged
 - High performance packet transfer rate over USB bus using proprietary burst transfer mechanism (US Patent Approval)
- **Fast Ethernet Controller**
 - Integrates 10/100Mbps Fast Ethernet MAC/PHY
 - IEEE 802.3 10Base-T/100Base-TX compatible
 - IEEE 802.3 100BASE-FX compatible
 - Supports twisted pair crossover detection and auto-correction (Auto-MDIX)
 - Embeds SRAM for packet buffering
 - Supports IPv4/ IPv6 packet Checksum Offload Engine to reduce CPU loading, including IPv4 IP/TCP/UDP/ICMP/IGMP & IPv6 TCP/UDP/ICMPv6 checksum check & generation
 - Supports full duplex operation with IEEE 802.3x flow control and half duplex operation with back-pressure flow control
 - Supports 2 VLAN ID filtering, received VLAN Tag (4 bytes) can be stripped off or preserved
 - PHY loop-back diagnostic capability
 - Supports Multiple unicast MAC destination address filter

Product Brief

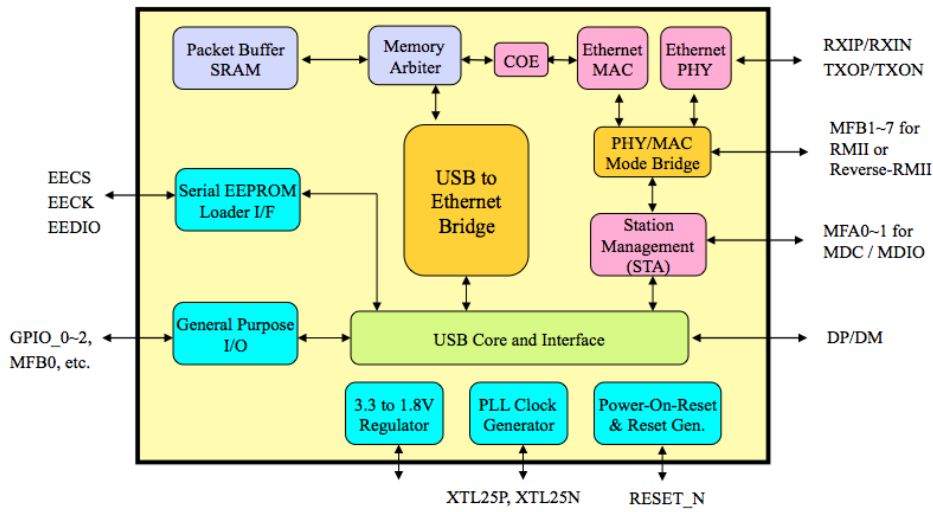
- **Support Wake-on-LAN Function**
 - Supports Suspend Mode and Remote Wakeup via Link-change, Magic packet, MS wakeup frame and external wakeup pin
 - Supports Protocol Offloads (ARP & NS) for Windows 8 and 7 Networking Power Management
 - Optional PHY power down during Suspend mode
 - Supports 32 bitmap Wake on LAN Patterns
 - Supports Wake Packet Indication
 - Supports Receive Filter Wakeup
- **Versatile External Media Interface**
 - Optional RMI interface in MAC mode allows AX88772C to work with HomePNA and HomePlug PHY
 - Optional Reverse-RMII interface in PHY mode allows AX88772C to support glueless MAC-to-MAC connections
- **Advanced Power Management Features**
 - Supports dynamic power management to reduce power dissipation during idle or light traffic period
 - Supports very low power Wake-on-LAN (WOL) mode when the system enters suspend mode and waits for network event to wake it up
- Supports 256/512 bytes (93c56/93c66) of serial EEPROM (for storing USB Descriptors)
- Supports automatic loading of Ethernet ID, USB Descriptors and Adapter Configuration from EEPROM after power-on initialization
- Integrates on-chip voltage regulator and only requires a single 3.3V power supply
- Single 25MHz clock input from either crystal or oscillator source
- Integrates on-chip power-on reset circuit
- Small form factor with 64-pin LQFP RoHS compliant package
- Operating commercial temperature range 0°C to 70°C

Product Description

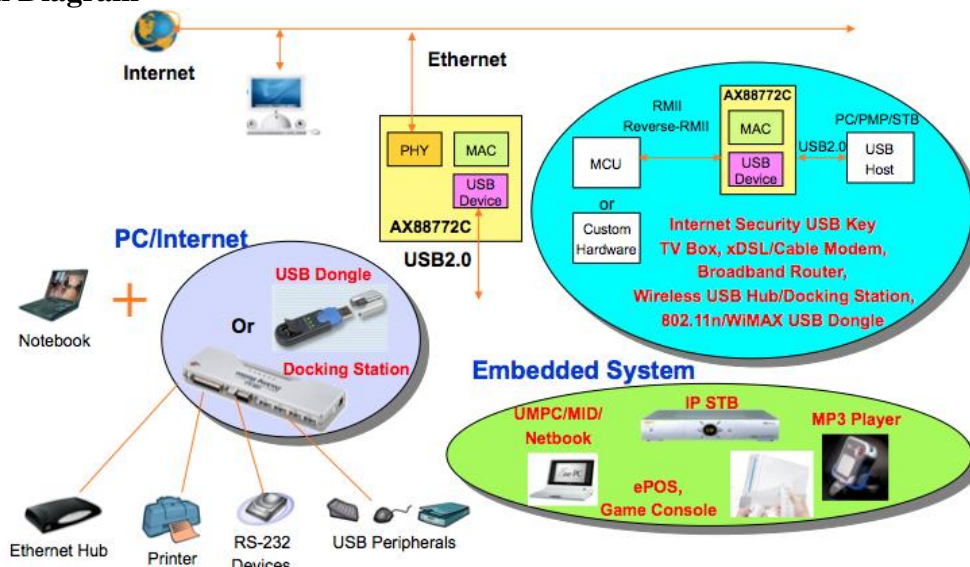
The AX88772C USB 2.0 to 10/100M Fast Ethernet controller with Microsoft AOAC(Always On Always Connected) support is a high performance and highly integrated ASIC which enables a low cost, small form factor, and simple plug-and-play Fast Ethernet network connection capability for desktops, notebook PCs, Ultrabooks, cradles/port replicators/docking stations, game consoles, digital-home appliances, and any embedded system using a standard USB port. The AX88772C can be used in any embedded system with a USB host microcontroller requiring a twisted pair physical network connection. Featuring a USB interface (compliant with USB specification V2.0 and V1.1) to communicate with a USB Host Controller, the AX88772C also integrates on-chip Ethernet MAC and PHY (IEEE802.3 and IEEE802.3u compatible) and embedded memory. Additionally, the AX88772C needs only a single 25MHz crystal to drive both the USB and Ethernet PHYs.

The AX88772C offers a wide array of features including IPv4/IPv6 checksum offload engine, Protocol Offload(ARP & NS), Auto-MDIX, and IEEE 802.3x and back-pressure flow control. The AX88772C also offers multiple power management Wake-on-LAN features, including Magic Packet, Microsoft Wakeup Frame, Link Status Change, 32 bitmap Wake on LAN Patterns and Wake Packet Indication that allows the AOAC platform to enter a low-power "Connected Standby" state and wake on a desired network pattern.

Block Diagram



Application Diagram



High-speed USB-to-LAN Applications

