

## 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 or 6 programmable 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 (HP Auto-MDIX)
  - Embedded SRAM for RX/TX 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
- **Support Wake-on-LAN Function**
  - Supports Suspend Mode and Remote Wakeup via Link-change, Magic packet, MS wakeup frame and external wakeup pin

## Product Description

The AX88772B Low-power USB 2.0 to 10/100M Fast Ethernet controller 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 PC's, Ultra-Mobile PC's, docking stations, game consoles, digital-home appliances, and any embedded system using a standard USB port.

The AX88772B features a USB interface to communicate with a USB Host Controller and is compliant with USB specification V1.1 and V2.0. The AX88772B implements 10/100Mbps Ethernet LAN function based on IEEE802.3 and IEEE802.3u standards with embedded SRAM for packet buffering. The AX88772B integrates an on-chip 10/100Mbps Ethernet PHY to simplify system design.

The AX88772B provides an optional Multi-Function-Bus portion A and B (MFA and MFB) for external PHY or external MAC for different application purposes. The MFA/MFB can be a reduce-media-independent interface (RMII) for implementing HomePlug, HomePNA, etc. functions. The MFA/MFB can also be a Reverse Reduced-MII (Reverse-RMII) for glueless MAC-to-MAC connections to any MCU with Ethernet MAC RMII interface. In addition, the MFA/MFB can be configured as general purpose I/O.

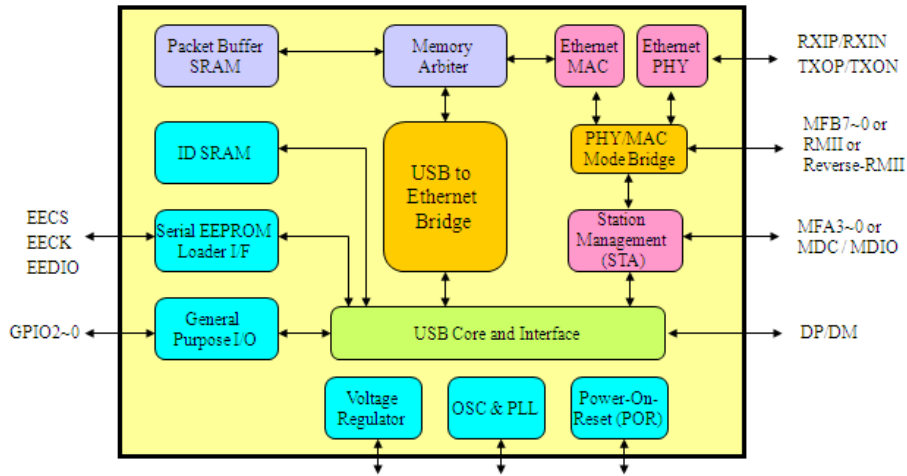
## Product Brief

- Supports Protocol Offloads (ARP & NS) for Windows 7 Networking Power Management
- Optional PHY power down during Suspend mode
- **Versatile External Media Interface**
  - Optional RMII interface in MAC mode allows AX88772B to work with HomePNA and HomePlug PHY
  - Optional Reverse-RMII interface in PHY mode allows AX88772B 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 awake it up
- Supports 256/512 bytes (93c56/93c66) of serial EEPROM (for storing USB Descriptors)
- Supports embedded ID SRAM (online programmable memory for USB Device Descriptors ,etc) to save external EEPROM
- 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 over 0°C to 70°C or -40 to +85°C temperature range

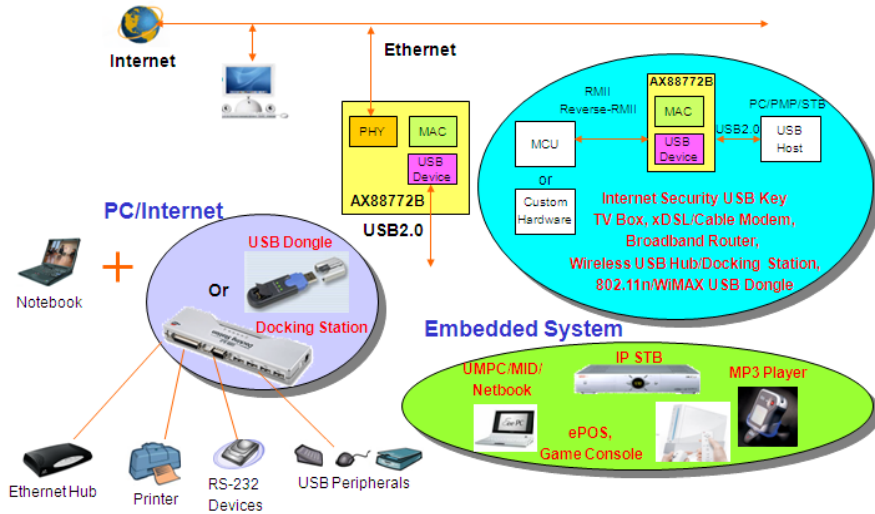
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### Block Diagram



### Application Diagram



### High-speed USB-to-LAN Applications

