High-Performance Non-PCI 32-bit 10/100/1000M Gigabit Ethernet Controller

Features

- High-performance non-PCI local bus
  - 16/32-bit SRAM-like host interface (US Patent Approval)
  - Support big/little endian data bus type
  - Large embedded SRAM for packet buffers
    - 32K bytes for receive buffer
    - 8K bytes for transmit buffer
  - Support IP/TCP/UDP checksum offloads
  - Support interrupt with high or low active trigger mode
- Highly-integrated Gigabit Ethernet controller
  - Compatible with IEEE802.3, 802.3u, and 802.3ab standards
  - Support 10/100/1000Mbps data rate
  - Support full duplex operations with 1000Mbps data rate
  - Support full and half duplex operations with 10/100Mbps data rate
  - Support 10/100/1000Mbps N-way Auto-negotiation operation
  - Support 10/100/1000Mbps data rate with RGMII (V2.0) interface
  - Support IEEE 802.3x flow control for full-duplex operation
  - Support back-pressure flow control for half-duplex operation
  - Support packet length set by software
  - Support max 4K bytes JUMBO packet
- Support Wake-on-LAN function by following events
  - Detection of network link-up state
  - Receipt of a Magic Packet
- Support Magic Packet detection for remote wake-up after power-on reset
- Support optional EEPROM interface
- Support PCMCIA in 16-bit mode
- Support synchronous or asynchronous mode to host MCU
- Integrated voltage regulator from 3.3V to 2.5V
- 2.5V for core and 3.3V I/O with 5V tolerance
- 128-pin LQFP with CMOS process, RoHS package

Product Description

The AX88180 is a high-performance and cost-effective non-PCI Gigabit Ethernet controller for various embedded systems including consumer electronics and home network markets that require a higher bandwidth of network connectivity. The AX88180 supports 16/32-bit SRAM-like host interface and Gigabit Ethernet MAC, which is IEEE802.3 10Base-T, IEEE802.3u 100Base-T, and IEEE802.3ab 1000Base-T compatible. The AX88180 supports full-duplex or half-duplex operation at 10/100/1000Mbps speed with auto-negotiation or manual setting. The AX88180 integrates large embedded SRAM for packet buffers to accommodate high bandwidth applications and supports IP/TCP/UDP checksum to offload processing loading from microprocessor/microcontroller in an embedded system.

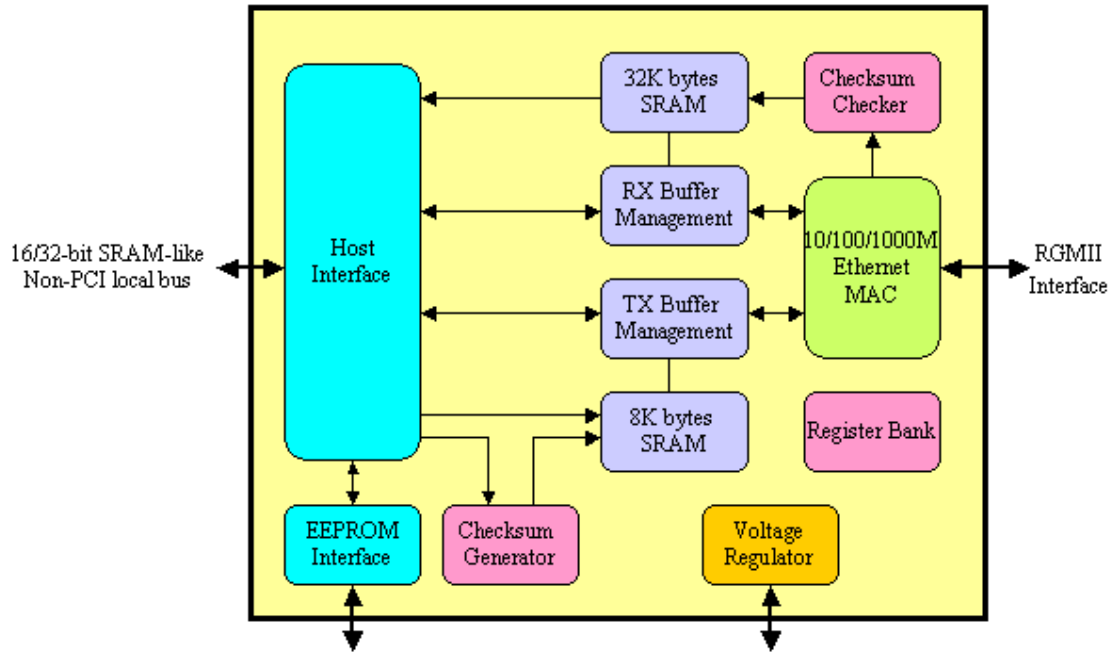
Target Market

- Multimedia applications
  - Content distribution application
    - Audio distribution system (Whole-house audio)
    - Video-over IP solution, IP PBX and video phone
    - Video distribution system, multi-room PVR
  - Cable, satellite, and IP set-top box
  - Digital video recorder
  - DVD recorder/player
  - High definition TV
  - Digital media client/server
  - Home gateway
  - IPTV for triple play
- Others
  - Printer, kiosk, security system
  - Wireless router & access point

ASIX Electronics Corporation
4F, No.8, Hsin Ann Rd.,
Hsinchu Science Park,
Hsinchu 30078, Taiwan

Released Date: 5/22/2008
TEL: +886-3-579-9500
FAX: +886-3-579-9558
http://www.asix.com.tw/

Block Diagram



Applications

The AX88180, designed with a high-performance RISC CPU, provides a very low cost yet very high-performance embedded networking solution to enable easy and simple LAN or Internet access capability to high-bandwidth multimedia application needs in the Internet era.