Overview

The JL6108 is an 8-port high-performance Gigabit Ethernet switch. The switch is highly integrated and smart-managed with 8 GE PHY and RISC-V inside. In addition, the device combines a nonblocking switch fabric and rich functions of a high-speed switch system, including packet buffers, address management, VLAN, ACL, QoS, MIB, etc.

The JL6108 contains eight full-duplex 10/100/1000 Mb/s triple-speed Ethernet transceivers in a 128-pin LQFP package. The device is compatible with all industry-standard Ethernet, Fast Ethernet, and Gigabit Ethernet systems. The device also contains a powerful RISC-V CPU system to support smart management, such as web-smart function and cloud management. In addition, the JL6108 also supports RTOS to run upper-layer software protocols.

Typical Applications

- 8-port Lite-Managed Gigabit Switch or Dump Switch
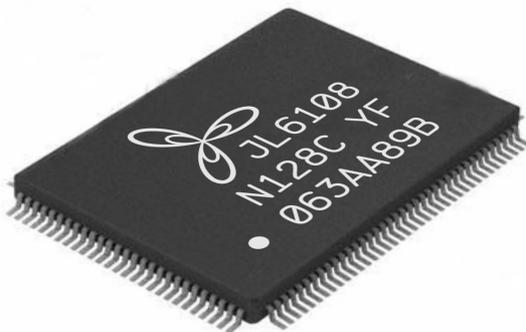
Features

- 8-port 10/100/1000BASE-T transceivers

- Each port supports full-duplex 10/100/1000M connectivity (half duplex only supported in 10/100M mode)

- Full-duplex and half-duplex operation with IEEE 802.3x flow control and backpressure

- Embedded RISC-V up to 156.25 MHz

- Basic Switching Function
  - Non-blocking wire-speed reception and transmission and non-HOL forwarding

  - Supports L2 switching, 4K L2 Mac table entry, aging time range 2s to 1600s, software accessible
  - Jumbo Frame size: 16 KB

  - Supports full mesh test from 64B to 1518B

  - Supports Broadcast/Multicast/Unknown DA storm control to protect system from attack by hackers

  - Supports one set of port mirroring functions for all ports. The TX, or RX, or both TX/RX packets of the source port can be monitored from a mirror port.

Features

- ACL feature
  - Supports 128-entry ACL rules

  - Search key supports physical port, layer2, layer3, and layer4 information

  - Each port can optionally enable or disable the ACL rule check function

  - Actions support permit, mirror, redirect, dropping, priority adjustment, traffic policing, and VLAN update.

  - Supports types of user-defined ACL rule format

- VLAN feature
  - Supports port-based VLAN

  - Supports IEEE802.1Q-based VLAN with 4096 entries

  - Supports VLAN policing and VLAN forwarding decision

  - Supports per-port and per-VLAN egress VLAN tagging and un-tagging

  - Supports Egress VID modification

  - Supports double-tagging

- STP feature
  - IEEEE 802.1D STP

  - IEEEE 802.1w Rapid Spanning Tree

  - IEEE 802.1s Multiple Spanning Tree up to 16 Spanning Tree instances

- QoS feature
  - 8 priority queues per port

  - Traffic classification based on IEEE 802.1p/Q priority definition, physical Port, IP DSCP field, ACL definition, VLAN based priority, MAC based priority, and SVLAN based priority

  - Strict Priority and DWRR to provide a minimum bandwidth

  - Priority modification on egress

  - Supports rate limiting based on Port/Queue/ Priority

- Other features
  - Support trunk function

  - RFC MIB Counter

  - Security filtering: Disable learning for each port. Disable learning-table aging for each port. Drop unknown DA for each port

  - Supports IEEEE 802.3 reserved group address filtering control

  - Supports IGMP v1/v2/v3 and MLD v1/v2 snooping. Trap all IGMP and MLD packets to the CPU port.

  - Supports SPI Flash interface

  - Support SMI/I2C master/slave mode to access EEPROM/register/CPU

  - Each port supports 3 parallel LED or serial LED or scan LED outputs

  - 25 MHz crystal input

  - LQFP 128-pin EPAD package