

Development of the World's Fastest 10-Gbit/s Packet Classification and Forwarding Board for Advanced Processing on High-speed Networks

NTT has developed the world's fastest 10-Gbit/s packet classification and forwarding board incorporating its Wspeed (wire-speed packet engine for edge system) LSI chip developed for 10-Gbit/s high-speed traffic. This board has demonstrated 10-Gbit/s packet processing in a firewall system. The ability to handle 10-Gbit/s high-speed traffic opens up new possibilities in core network applications. With this board, a variety of implementations can be envisioned for server and router interfaces that require ultrahigh-speed packet processing.

The Wspeed chip incorporated in this board was developed as a key device for enabling advanced functions in high-speed networks that include firewall systems. It features 10-Gbit/s wire-speed packet processing and IPv4 packet flow classification. The board eliminates the load on the server and makes some interfaces superfluous, thereby reducing the cost of constructing a firewall.

The main features of this board are as follows.

- 1) It achieves 10-Gbit/s ultrahigh-speed packet processing through Wspeed 10-Gbit/s wire-speed processing and IPv4 packet flow classification.

- 2) It enables packet-processing algorithms to be modified and updated without service interruptions through an LSI function that enables immediate changes to hardware circuitry and a board function for temporarily storing packets.

NTT will continue researching this board for application to NTT's resonant communication network architecture (RENA). We plan to examine the general effectiveness of the board in 10-Gbit/s ultrahigh-speed packet processing equipment by holding a series of trials that will investigate various usage scenarios in addition to firewall systems. NTT is also considering commercializing the board's technology in the form of a general-purpose packet-processing board that exploits the board's packet-header processing section. As a first step in this process, NTT plans to commercialize a 2-Gbit/s PCI (peripheral component interconnect) board with two ports for Gigabit Ethernet within the year.

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