Product Brief   **TF470**

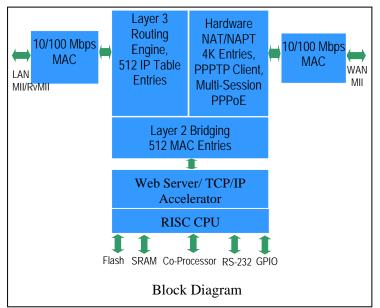## TF470 Advanced Wire Speed NAT Router SoC

Taifatech's TF470 Advanced Wire Speed NAT Router SoC delivers the highest performance possible in Network Address Translations for SOHO routers and Home Gateways. 200Mbps full duplex LAN-WAN performance is achieved by performing NAT and other functions in hardware. Using no operating system, results in less memory, better performance and lower cost. This method has been proven exceptionally successful in the Smart Switch Market. Embedding RAM in TF-470 eliminates the need for external memory, further reducing cost.

To address the growing popularity of VoIP and video conferencing applications, TF470 provides L3/L4 QoS to prioritize NAT traffic. This break-through in technology provides better experience in voice, video, online gaming and other time critical applications.
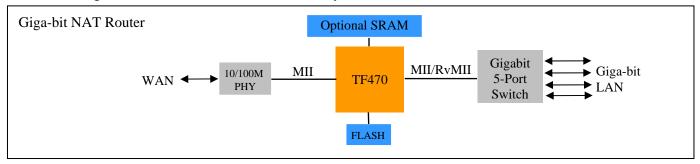
Using the proven hardware filtering technology used in the Smart Switch market, high bandwidth data can be sent using multicast therefore lowers bandwidth consumption in multi-user environment. This allows multi-media contents to be broadcasted through the network without bringing the network to a crawl, or worse yet completely down.

TF470 offers hardware based multiple PPPoE sessions to deliver better performance and network resiliency. Per port hardware based pattern search can be used to improve the performance of proxy server. Also offered with the TF470 is Taifatech's patent pending Home Portal technology. TF-470 will gather information on Internet enabled devices on the network and displays them on a web page which can then be accessed from the Internet. This eliminates the need to manually configure each device and remembering the assigned port numbers for the device. With a single click of the mouse, users will be directed automatically to the desired Internet enabled device such as Network Camera, Personal Video Recorder (PVR), Internet Appliance, thermostats and more.

Combining wire speed throughput and L4 QoS, TF-470 is also the ideal solution to deliver High Definition contents through the network. When deployed with a head-end unit, TF-470 provides a high performance and cost effective solution for Gigabit Router and HD video distribution system.

Block Diagram

Giga-bit NAT Router

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Advanced Wire Speed NAT Router SoC

NAT FEATURES

- Hardware based NAT/NAPT, 4K entries for NAT table
- Supports up to 8 public IP addresses
- Supports up to 8 DMZ hosts
- Supports port range forwarding, up to 32 entries
- Supports port range triggering, up to 24 entries
- Supports port forwarding, up to 96 entries
- Supports up to 4 LAN static route entries
- Supports up to 4 WAN static route entries
- Supports VPN pass through: 8 PPTP sessions, unlimited L2TP sessions and single IPSec session
- Supports Multicast Pass Through from WAN to LAN

HARDWARE FEATURES

- **HTTP Server, TCP/IP Protocol Handler**
  - Pipelined RISC TF-390 core, 50MHz operating frequency, single cycle per instruction
  - Software compatible with standard 8051
  - 96KB memory for data, packet buffer & program mirroring
  - Supports up to 4MB External Flash/ROM/SRAM respectively
  - Hardware pattern search engine on CPU SRAM
- **Built-in Internet Protocol Accelerator**
- **Dedicated 22-bit address and 8-bit data bus for external program, data memory and extended IO**
- **Hardware based 1 byte to 8 byte pattern search engine**
- **Embedded 88K bytes SRAM for packet buffer, data memory, L2/L3 address table and NAT table.**
- **Hardware based per port pattern search engine, 4 8-byte for LAN, 4 8-byte and 1 16 byte for WAN**
- **Hardware based multi-session PPPoE, up to 4 sessions**

- **Hardware Based Router/bridge**
  - Supports layer 2 bridging, 512 entries for L2 MAC Address Table
  - Supports layer 3 routing, 512 entries for LAN and 256 entries for WAN IP table
- **Hardware based security**
  - Up to 10 Port filtering
  - Up to 512 source IP address filtering
  - Up to 10 destination IP address filtering
  - UP to 512 Source and destination MAC address filtering
- **IP unnumber, up to 4**
- **Hardware based L3/L4 QoS function**
- **Internal SRAM**
  - 40K Bytes for packet buffer and L2/L3 address table
  - 48K Bytes for NAT table
  - 96K Bytes for MCU data/packet buffer
- **Disables NAT to use as basic router**
- **Built-in 10/100Mbps Ethernet MAC**
  - Selectable MII or Reverse MII interface
  - 802.3x flow control for full duplex mode and Jamming for half duplex mode
- **0.18 um CMOS technology, 1.8V internal operation, 3.3V IOs**
- **128-pin QFP package**
- **TF470-ACL complies with RoHS.**

MANAGEMENT

- Setup and configuration through web browser
- Firmware upgrade via TFTP or Web

APPLICATIONS

- SOHO Gigabit router
- SOHO 10/100M router

Evaluation Kit

Please send requests for evaluation kits to sales@taifatech.com

For additional information on the TF470 please visit us at www.taifatech.com

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