

## Optimized NicheStack TCP/IP for Altera Nios II

*InterNiche Technologies and Altera have collaborated to provide a version of InterNiche's NicheStack IPv4 optimized for the Nios II architecture. NicheStack is a complete TCP/IP protocol stack designed from the ground up for connected device implementations. NicheStack combines small size, extreme portability and high performance without compromising RFC compliance. Supporting a wide variety of physical interfaces, NicheStack's IP layer can be configured as a standard client machine, an IP router, or a multi-homed server. As a comprehensive device networking package, FTP, Telnet, IGMPv1, and DNS and DHCP client components are included. NicheStack IPv4 provides an economical, solid protocol platform for InterNiche's optional PPP, Web Server, DHCP Server, DNS Server, Email, SNMP, and routing products.*

### NicheStack IPv4 Highlights

- Robust, efficient and complete implementation of TCP/IP v4 protocols
- Supports multiple network interfaces
- Zero data copy for ultra fast performance
- Standard BSD Sockets Interface
- Blocking and Non-blocking sockets
- Versatile MSS and window options
- Connections limited only by memory availability
- Optional optimized assembly language checksum routines
- "Predictive" header processing
- Nagle Algorithm (Slow Start)
- VJ Smoothed Round Trip Timing
- BSD-style "Keepalive" option
- NicheTool debugging and optimization module
- No "GPL Contamination"
- Also Includes:
  - ICMP / Ping
  - ARP
  - NicheFile™ VFS
  - Available Mini-Sockets API
  - TFTP server and client
  - FTP server
  - IGMPv1
  - Telnet Client

## InterNiche Add-On Modules for Altera Nios II

InterNiche's optional protocol modules have been developed from the ground up to address the needs of low cost embedded systems. The result is a functionally comprehensive modular solution with minimal system and memory requirements, tuned for both portability and performance.

NicheStack SNMP (v1, v2c or v3) is an implementation of the most up-to-date set of IETF SNMP protocols in a memory-efficient, highly portable toolkit designed for OEMs and System Integrators that require a fast, small, proven embedded SNMP agent for their embedded device support. A MIB Compiler is also provided.

NicheStack HTTPServer™ is an innovative robust embedded web server that has been designed specifically to optimize size and performance while supporting dynamic data displays and important security features.

**Protocol Options:** A variety of optional modules support solutions for specific applications including Point to Point Protocol (PPP), PPPoE, Routing and Security protocols.

NicheStack™ IPv6 is a fully compliant suite of protocols for Internet, intranet, and LAN connectivity for use on IPv6 networks. This portable TCP/IP stack is a complete SDK for developers of next-generation networked devices.

NicheStack™ Dual IPv4/v6 is an implementation of TCP/IP designed for applications requiring both IPv4 and IPv6 protocol support. NicheStack Dual offers a unique and flexible combination of networking support for devices that must operate in today's IPv4 based networks and be compatible with future upgrades to IPv6 environments.

InterNiche's Security Toolkits allow developers to quickly add secure communication and high-performance VPN capabilities to existing applications. These toolkits are device optimized implementations of industry standard SSL, TLS, IPsec and IKE protocols with seamless integration to all NicheStack TCP/IP products. Integrated CryptoEngine™ technology optimizes uses of available hardware acceleration.

NAT, RIP and DNS and DHCP Servers are software modules supporting gateway and protocol bridge implementations. NicheStack NAT and DHCP support private IP address assignment for up to 64,000 devices, and using the Domain Name System (DNS) Server enables a local namespace database that can be queried by other devices. RIP enables dynamic gathering and exchange of IP addresses in multi-port device implementations.

For further information on any of these products or services please call, email or visit our web site: <http://www.iniche.com>.

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