CycloneTCP is a dual IPv4/IPv6 stack dedicated to embedded applications. CycloneTCP conforms to RFC standards and offers seamless interoperability with existing TCP/IP systems. By supporting IPv6, CycloneTCP eases deployment of next-generation Internet. The stack is distributed as a full ANSI C and highly maintainable source code. CycloneTCP is available either as open source (GPLv2) or under a commercial license.

Main Features
- Dual stack (IPv4 and/or IPv6)
- Built-in support for multiple network interfaces
- BSD style socket API
- Blocking/non-blocking socket operation and event-driven functions (select and poll)
- Efficient data transfer through zero copy
- Well-crafted TCP module with selective acknowledgement (SACK) and congestion control
- Raw socket interface
- Multicast support (IGMPv2 and MLDv1)
- IP fragmentation and reassembly support
- Flexible memory footprint. Built-time configuration to embed only the necessary features
- High throughput
- Off-load checksum calculation (when supported by hardware) to accelerate IP/TCP/UDP/ICMP checksum generation and verification
- Configurable memory model: Static memory pool or heap memory allocation
- Dialog-based configuration wizard
- Portable architecture (no processor dependencies)
- Straightforward port to any RTOS
- Debugging and trace functionality to ease development and integration
- Highly maintainable source code
- Supports industry-standard microcontrollers with built-in MAC as well as standalone Ethernet controllers

Add-On Modules
- Auto-IP for dynamic configuration of IPv4 address
- DHCP client
- SLAAC for dynamic IPv6 address assignment and auto-configuration
- DHCPv6 client and relay agent
- Host name resolution (DNS, mDNS and NetBIOS Name Service)
- mDNS and NetBIOS responder
- DNS service discovery (DNS-SD)
- SMTP client for sending e-mails
- FTP client and server
- HTTP server with Server-Sides Includes and CGI scripting for dynamic contents
- HTTPS server
- SNTP client (Network time)
- Standard Internet services (Echo, Discard, Chargen and Daytime)
- PPP (Point-to-Point) protocol
- Icecast/SHOUTcast client for streaming audio over the Internet

Supported Cortus® Cores
Processor IP cores with 10/100 Ethernet MAC:

<table>
<thead>
<tr>
<th>Core</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS23</td>
<td>Ultra Low Power, Excellent Code Density</td>
</tr>
<tr>
<td>APS25</td>
<td>High performance, Excellent Code Density</td>
</tr>
<tr>
<td>APS1</td>
<td>Cost Effective Microcontroller</td>
</tr>
<tr>
<td>APS3R</td>
<td>Low Energy Core</td>
</tr>
<tr>
<td>APS5</td>
<td>High Performance Core</td>
</tr>
<tr>
<td>FPS6</td>
<td>Embedded Control, with Floating Point Unit</td>
</tr>
</tbody>
</table>

Related products
- CycloneSSL (SSL/TLS library)
- CycloneCrypto (cryptographic toolkit)
Reference Standards

Network Layer (IPv4)
- RFC 791: Internet Protocol Specification
- RFC 792: Internet Control Message Protocol Specification
- RFC 815: IP Datagram Reassembly Algorithms
- RFC 826: Ethernet Address Resolution Protocol
- RFC 1112: Host Extensions for IP Multicasting
- RFC 1122: Requirements for Internet Hosts - Communication Layers
- RFC 2113: IP Router Alert Option

Network Layer (IPv6)
- RFC 2464: Transmission of IPv6 Packets over Ethernet Networks
- RFC 2710: Multicast Listener Discovery (MLD) for IPv6
- RFC 3484: Default Address Selection for Internet Protocol version 6 (IPv6)
- RFC 3493: Basic Socket Interface Extensions for IPv6
- RFC 4291: IP Version 6 Addressing Architecture
- RFC 4294: IPv6 Node Requirements
- RFC 4443: Internet Control Message Protocol Version 6 (ICMPv6) Specification
- RFC 4861: Neighbor Discovery for IP version 6 (IPv6)
- RFC 4862: IPv6 Stateless Address Autoconfiguration

Transport Layer
- RFC 768: User Datagram Protocol
- RFC 793: Transmission Control Protocol
- RFC 2018: TCP Selective Acknowledgment Options
- RFC 5681: TCP Congestion Control
- RFC 6298: Computing TCP’s Retransmission Timer

Application Layer
- RFC 959: File Transfer Protocol (FTP)
- RFC 1035: Domain Names – Implementation and Specification
- RFC 1945: Hypertext Transfer Protocol - HTTP/1.0
- RFC 2131: Dynamic Host Configuration Protocol
- RFC 2132: DHCP Options and BOOTP Vendor Extensions
- RFC 2616: Hypertext Transfer Protocol - HTTP/1.1
- RFC 2617: HTTP Authentication: Basic and Digest Access Authentication
- RFC 2818: HTTP Over TLS
- RFC 3207: SMTP Service Extension for Secure SMTP over Transport Layer Security
- RFC 3315: Dynamic Host Configuration Protocol for IPv6 (DHCPv6)
- RFC 3646: DNS Configuration options for DHCPv6
- RFC 4954: SMTP Service Extension for Authentication
- RFC 5321: Simple Mail Transfer Protocol
- RFC 6762: Multicast DNS

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