

What is RTXCnet?

The RTXCnet Network Communication Suite is an array of fully portable software components for networking communications in embedded applications. Each component is fully integrated with the RTXC real-time OS kernel. In a fraction of the development time required with other products, the RTXCnet network components allow you to build applications that transfer files, commands, and data, across the room or across the world.

What is in RTXCnet?

The core of the RTXCnet Network Communication Suite is the RTXCnet manager, a transparent component of RTXCnet. The RTXCnet manager arbitrates synchronization and interactions among the application, the stack protocol engine, and the kernel. This greatly simplifies application development because the RTXCnet manager is already equipped to use the kernel resources it needs. No debugging. No searching through source code to connect the stack to the kernel.

The RTXCnet Network Communication Suite

RTXCnet also includes a comprehensive suite of high performance components to support the most popular protocols in use today, such as TCP, IP, ARP, UDP, ICMP, SNMP, PPP, SLIP, HTTP, FTP, DHCP, and more.

RTXCip

The RTXCip component, the basic unit of the RTXCnet suite, implements the Internet Protocol (IP). You can configure RTXCip as a standard client machine, an IP router, or a multi-homed server. It also handles fragmentation and re-assembly of IP packets. In addition to IP, RTXCip includes the UDP, ARP, DNS, DHCP Client, and ICMP protocols.

RTXCtcp/ip

A combination of IP and the Transmission Control Protocol (TCP), the RTXCtcp/ip component adds TCP support to the RTXCip package. The result is a complete network communications package including a Berkeley-like sockets interface and support for Network Address Translation routing. Unlike some TCP/IP products, RTXCtcp/ip sockets use blocking I/O to achieve maximum performance by eliminating the need for I/O completion polling. Additional features:

- Nagle Algorithm (Slow Start)
- V J-smoothed round trip timing
- Delayed ACKs

RTXCslip

The RTXCslip component implements the Serial Line Internet Protocol (SLIP), one of the earliest protocols for carrying Internet packets over phone lines.

RTXCppp

The RTXCppp component implements the Point-to-Point Protocol (PPP) which links to RTXCip. It provides a device-independent link layer for a serial line with or without a modem. You can use RTXCppp as a client or as a server. The RTXCppp component includes LCP, IPCP, CHAP, and UPAP and supports all standard PPP authentication protocols including DHCP over PPP. RTXCppp supports multiple simultaneous links and VJ Header compression.

RTXCdhcp

The RTXCdhcp component is a complete Dynamic Host Configuration Protocol (DHCP) server module that provides a standard way to make run-time assignments of IP addresses to client devices on the network. Additionally, the DHCP server can also assign private IP addresses for local area network (LAN) devices that are connected to a NAT Router. RTXCdhcp saves money by allowing network management with a smaller pool of IP addresses. The RTXCdhcp package supports a device-independent database - thus providing a variety of choices for storage media. The RTXCdhcp component is compatible with Windows 95/98/ NT DHCP Client and BOOTP clients.

RTXCsnmp

The RTXCsnmp component implements the Simple Network Management Protocol (SNMP) to provide access to variables in a Management Information Base (MIB). In the protocol stack, RTXCsnmp runs above the UDP portion of RTXCip. You may create a custom MIB for your application by adding application specific variables to the provided sample MIB. The RTXCsnmp package includes a development system-based MIB compiler to convert your MIB into C code for inclusion with RTXCsnmp code.

Additional features:

- No memory management necessary
- Support for TRAPS
- MIB access with SETs, GETs, NEXTs

RTXCweb

The RTXCweb component enables you to add Web access to your embedded application using Hypertext Transfer Protocol (HTTP). Using any standard Web browser, you can send commands from your system or retrieve data or status about your application. RTXCweb allows you to use fixed, forms, or dynamic HTML pages. This is the perfect solution for a human-machine interface requiring remote access and control, or when Internet connectivity is desired. A separate HTML compiler, RTXChtml -comp, permits conversion and compression of HTML pages to C code.

Additional features:

- Support for Common Gateway Interface (CGI)
- Support for uuencode or MD5 encryption authorization
- Support for Server Side Includes (SSI)

RTXCftp

The RTXCftp component implements the File Transfer Protocol (FTP), to add sophisticated file service capabilities to your system. FTP is one of the most reliable and popular methods of file transfer in use today. The RTXCftp component can use a native file system on the target processor or a virtual file system (VFS) to transfer data over a network efficiently and easily.

Additional features:

- Initiation of file requests
- Quick and easy porting through the Sockets interface
- Support for passive mode
- Multi-user and multi-session support

RTXCtftp

The RTXCtftp component implements the Trivial File Transfer Protocol (TFTP) to add simple file service capabilities to your system. TFTP is a popular method of file transfer in use today. The

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Additional features:

- Initiation of file requests
- Quick and easy porting through the Sockets interface

RTXCrip

The RTXCrip component implements the Routing Information Protocol (RIP), for use on IP-based networks. With RTXCrip, you do not need to create and maintain routing tables manually. RIP enables your system to gather and supply the gateway IP addresses dynamically using RIP Silent Process. Using RTXCrip routers automatically maintain their routing table information and share it with others to determine where and how to route data from one network node to another. RTXCrip runs on top of the User Datagram Protocol (UDP) portion of RTXC ip.

Additional features:

- Triggered updates
- Use of RIP Split Horizon methods
- Support for RIP authentication per RFC 1773

RTXCalerter

The RTXCalerter component is an email alerter implementing only the transmit portion of the Simple Mail Transfer Protocol (SMTP). RTXCalerter lets you design your application so that system alarms or alerts can be transmitted by email. The product supports transmission to multiple recipients. Any standard SMTP-based email server can receive messages sent using RTXC alerter.

RTXCnat

The RTXCnat component supports connecting a client to the Internet using a real IP address, one assigned by InterNic, through Network Address Translation (NAT). The RTXCnat component modifies the IP headers on upper layer protocols headers received from client nodes by replacing internal IP addresses with the InterNic assigned IP address of the node running RTXCnat. Once modified, these headers can move safely throughout the Internet.

RTXCtelnet

The RTXCtelnet component implements the telecommunications network protocol commonly called telnet. Telnet is one of the most popular methods of remotely communicating with a system in use today. The RTXCtelnet component includes the following features:

- Support for both server and client options
- Quick and easy porting through the Sockets interface
- Multi-user and multi-session support

RTXCmcast

The RTXCmcast component adds IP Multicast support to RTXCnet. IP multicast is a popular way to reduce network traffic when sending the same information to multiple destinations.

Ethernet Drivers

Ethernet drivers are available for a wide variety of chip sets. Now you can use drop-in software from the physical layer up to your application to save time and money.

Why Choose RTXCnet?

- **Flexibility**
Choose only the RTXCnet components you need. Options within each component allow you to configure RTXCnet to your requirements.
- **Ease of Use**
While RTXCnet is highly specialized, it is also easy to use. For example, it takes one initialization call to get the stack up and running, and just one function call from a task to transmit around the globe. RTXCnet allocates all the needed resources and initializes the network stack including all network drivers.
- **Integration**
Each RTXCnet component is fully integrated with all prerequisite RTXC net components and the #1-rated royalty free real-time RTXC Kernel.
- **Ports and Bindings**
Like the RTXC Kernel, all RTXCnet components are ported to supported processors, bound to the most popular C compiler of your choice, and then fully tested.
- **Code Size**
RTXCnet is highly optimized to conserve both RAM and ROM memory space. Now you have more room for your application code and data.
- **Low Cost**
You can incorporate into your product royalty-free. In addition to its low cost, RTXCnet saves you engineering time and helps you meet your time-to-market.
- **Support**
Embedded Power Corporation has been a leading supplier of products for the real-time, embedded market since 1978 with an engineering staff ready to answer every question concerning our products.

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