



Barracuda Advanced Web Server™

Provides the ultimate in remote monitoring and control of embedded systems using commercial browsers.

Barracuda is an advanced, embedded Web Server that provides capabilities comparable to those found in enterprise Web Servers.

Sophisticated Graphical User Interfaces

How your product looks to your potential user is a major sales feature. The ubiquity of HTTP and HTML are well-known, as is their ability to create sophisticated graphical user interfaces. This is ideal for headless embedded products and for remote access to all embedded products. Barracuda allows you to employ professional HTML designers to create outstanding graphical user interfaces.

Powerful Device Control

As good as it is for presentation, Barracuda is even better for remote device control. This is because it is based upon a server-side scripting language, called CSP. CSP allows creating C (or C++) scripts to execute the HTTP GET and POST commands sent by browsers. GET commands are used to get information from the device; POST commands are used to control the device. Creating scripts for these processes is made easier by having persistent sessions provided by Barracuda. (HTTP normally closes a connection after each response.) For examples of how device control is done with Barracuda, see our white papers at www.smxinfo.com/rtos/tcpip/barracuda.

Division of Labor

Most embedded Web Servers permit embedding readings and other dynamic data into HTML pages via *server-side includes*. These are accomplished with C function calls embedded into HTML pages. This mixture of C and HTML makes creating and maintaining professional-looking web pages difficult. Barracuda, by virtue of its scripting language, CSP, allows separating the presentation from the logic.

FEATURES

- Advanced server-side scripting language
- Persistent session handling
- Separation of presentation and logic
- HTTP 1.0 and 1.1, with persistent connections
- IPv4 and IPv6 operation
- Authentication and Authorization
 - HTTP Basic
 - HTTP Digest
 - Form-based login
- SSL support
- Integrated with *smx*, *smxNet*, and *smxFile*
- Also available stand-alone
- Virtual object-oriented file system included
- Written in ANSI C-compatible code
- Designed as an object-oriented library
- Secure control makes SNMP unnecessary

CSP, with its own cross-compiler and linker, allows generating *dynamic HTML*. HTML designers can work on the presentation and leave the logic to C programmers (who do not have to worry about appearance).

Security

Post 9/11, security has become increasingly important. If your embedded product produces sensitive information or if its behavior can be remotely controlled, then your customers will want security. Barracuda provides advanced protection as follows:

- Optional SharkSSL protects communication from being eavesdropped by a third party.

- Authenticating users by using HTTP Digest, HTTP Basic, or Form Based Login.
- Authorization can also be controlled by placing users in groups with different privilege levels.

Access

All firewalls accept access via HTTP port 80 or secure access via HTTPS port 443. This cannot be said for other protocols, such as SNMP or email. Hence, the use of HTTP or HTTPS guarantees that your product will be accessible even if it is on the other side of a customer's firewall.

Code Footprints

ROM:
 Web Server: 105KB (typical size is 70KB)
 Event Handler: 35KB (See separate datasheet)
 RAM: < 7KB

Minimizing Web Page Memory

A well-known downside of HTML pages is their potentially large size. Barracuda attacks this problem by providing host tools that precompile the HTML and server-side scripts into binary files, which can then be zipped up. The Barracuda virtual file system can read ZIP files directly from flash, without need for an unzip utility. *smxFile* can read ZIP, binary, or HTML files from a variety of media; *smxFFS* can read these files from resident NAND flash; or binary files can be linked with application code.

Integration with SMX

Barracuda has been integrated with *smx*, *smxNet*, *smxFile*, and *smxFFS*. It runs as a single task, uses the Berkeley socket API, and comes with a virtual file system that can be used instead of *smxFile*. See www.smxinfo.com/rtos/tcpip/barracuda for an SMX/Barracuda evaluation kit. As delivered, Barracuda supports GCC and VC++ using GNU male. For GCC, the Cygwin environment is recommended. For VC++, Windows-compatible tools are provided.

Other Environments

Barracuda encapsulates the socket interface and the SSL interface, thus Barracuda can easily be ported to other environments.

Documentation

Extensive documentation is provided. The User's Manual describes the web server's fundamentals and how to use CSP. The Reference Manual describes the feature-rich Web Server API. Since Barracuda's CSP is very similar to Microsoft's Active Server Pages (ASP), one can learn how to use CSP from an ASP book. The main difference is that CSP uses C or C++ for server-side scripting.

Support

The Barracuda price includes 6 months of phone and email technical support. However, we realize that Web Server, browser, and HTML technology are unfamiliar to most embedded programmers and their managers. Hence, we offer consulting services, on an hourly basis, to provide training and assistance to get maximum benefit from Barracuda.

How to Order

Contact us for the latest pricing and options.

Sales: (800) 366-2491
 Local: (714) 437-7333
 Sales@smxrtos.com
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Reference Information

For more information, on Barracuda, see the following white papers on our website:

1. Device Control with Barracuda. How to get/set the system time in SMX by using a web-interface.
2. Creating a User Interface with the Barracuda CSP server side tag language — Separating Logic and Presentation.

Demos and evaluation kits are also available from www.smxinfo.com/rtos/tcpip/barracuda.