

# Allegro AE™ Product Suite

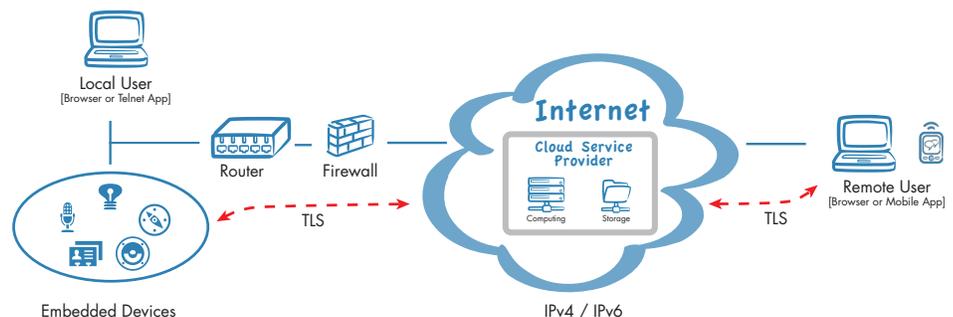
## Allegro AE Product Suite

- **Embedded Web Server**  
RomPager AE
- **Embedded Web Client**  
RomWebClient AE
- **Embedded TLS**  
RomSTL
- **Embedded XML**  
RomXML AE
- **Embedded SOAP**  
RomXOAP AE
- **Command Line Interface**  
RomCLI AE
- **Embedded SSH**  
RomSShell AE
- **Embedded X.509**  
RomCert
- **FIPS 140-2 and Suite B**  
Allegro Cryptography Engine  
ACE

## Secure Software for the Internet of Things

Today, the Internet connects billions of users worldwide and is an integral part of how people work, play, and communicate. Research shows that billions of “smart” devices are active members of the networked world busily collecting, securely distributing and acting upon all forms of data. As the premier provider of Internet and Security software for embedded applications, Allegro provides OEM manufacturers creating “smart” and secure devices with easy to use, feature rich Internet enabling software toolkits.

The Allegro AE Product Suite delivers powerful Internet and device security technology specifically engineered for the rigors of embedded computing to OEM design engineering teams. Allegro AE offers IPv4 and IPv6 operation enabling OEM manufacturers to build secure embedded device management architectures that perform seamlessly in IPv4 and IPV6 networking environments alike. The Allegro AE product family is pre-integrated with the Allegro Cryptography Engine (ACE™) FIPS 140-2 validated cryptography module, enabling manufacturers to add standards-based cryptography to resource-sensitive embedded systems quickly, easily, and reliably while decreasing time to market. The family of Allegro AE product toolkits deliver field-proven standards-based protocol components to securely serve Web pages, images or applets, securely retrieve files from resources on the Web, quickly create a secure and robust Command Line Interface(CLI), and exchange XML and SOAP messaging with enterprise or cloud-based computing and storage resources.



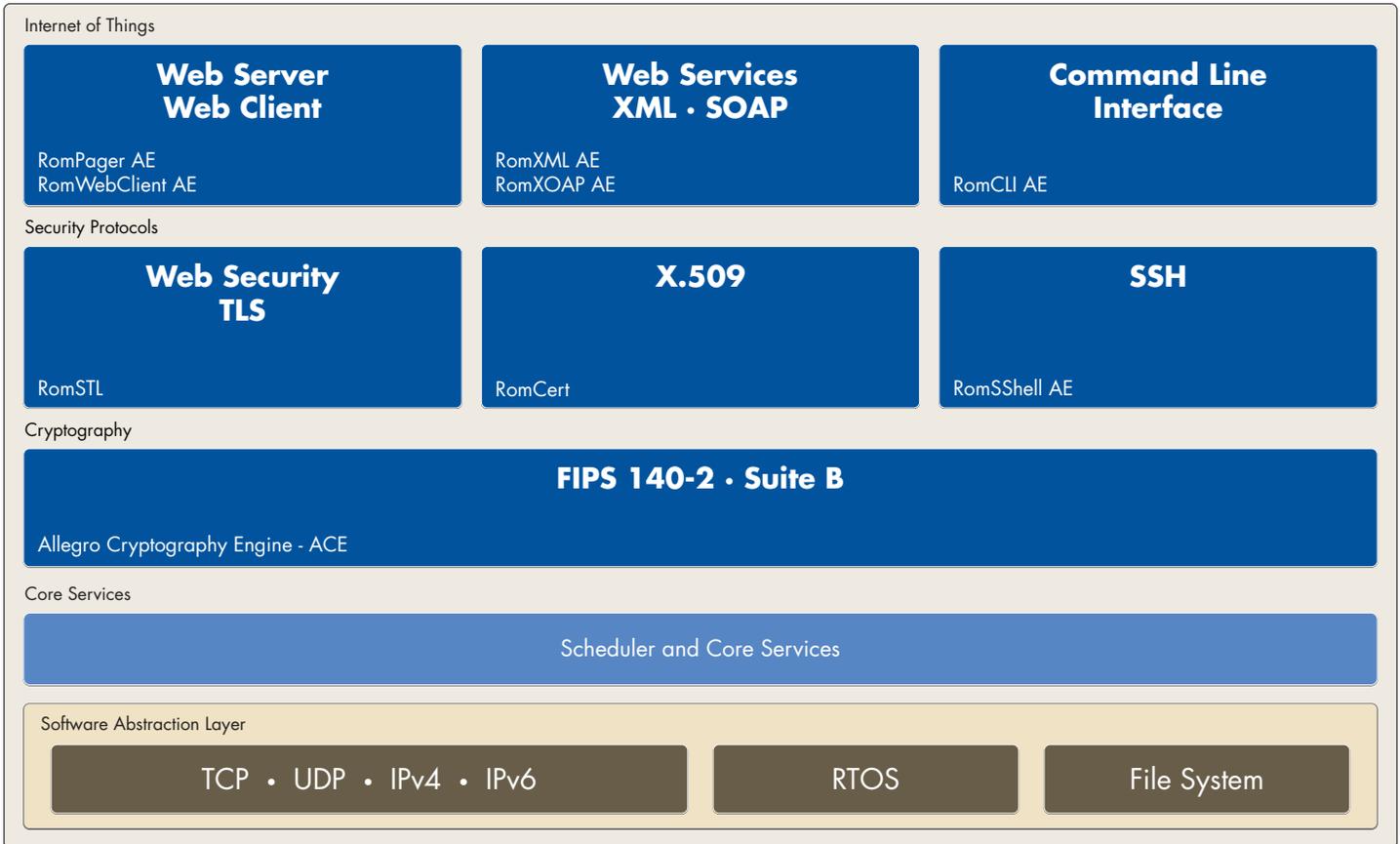
## Embedded Device Management Architecture

Shipping inside over 200 million products with over 300 design wins worldwide, Allegro is a leading OEM supplier of embedded networking technology. The entire product family is delivered as ANSI-C source and has been ported to all major processor and RTOS platforms. All products utilize a field-proven software abstraction layer to provide an interface to any RTOS, TCP/IP protocol stack and file system environment. Delivered as stand-alone products or as a pre-integrated suite, Allegro’s toolkits offer unprecedented design flexibility and scalable Internet networking solutions for your design needs.

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*Allegro*



## Web Server · Web Client

### RomPager AE™

RomPager AE is a full featured HTTP 1.0/1.1 Web server toolkit that offers IPv4 and IPv6 operation, CGI-style user exit support, an internal security database, optional file support, and the PageBuilder HTML offline compiler. The PageBuilder compiler dramatically reduces development time, coding effort, and potential errors by converting HTML into compilable source code. The compiler provides full support for HTML (2.0, 3.2, 4.0 and 5.0), XHTML, JavaScript, object compression, application compression, and international languages with dynamic phrase dictionaries.

### RomWebClient AE™

The RomWebClient AE toolkit is a full featured HTTP 1.0/1.1 Web client that retrieves and stores objects from any remote Web server using HTTP over IPv4 or IPv6. Objects can be in any format and are stored in memory or in an optional file system. The toolkit also supports caching, cookies, HTTP pipelining capabilities, and advanced HTTP streaming.

## Web Services · XML · SOAP

### RomXML AE™ · RomXOAP AE™

The RomXML AE toolkit is a small eXtensible Markup Language (XML) implementation that enables your embedded device to send (frame) and receive (parse) XML documents. Using XML in your embedded designs provides for free-format interchange of data and is widely accepted in the device management, remote sensing, and enterprise IT communities. Allegro's RomXML AE has been designed from the ground up for use in embedded devices that often have limited resources. Written in ANSI-C, the toolkit offers built-in capabilities to convert internal data between C language structures and XML documents.

The RomXOAP AE toolkit builds upon the capabilities of RomXML AE and offers design engineers a comprehensive solution for creating connectivity between embedded designs and enterprise IT environments utilizing standards-based SOAP technology. Available as stand-alone toolkits or tightly integrated with the other Allegro AE suite of products, RomXML AE and RomXOAP AE provide the foundation for enabling embedded devices with XML, SOAP, XML-RPC, REST, and Web Services capabilities.



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## Embedded FIPS 140-2 · Suite B

### Allegro Cryptography Engine (ACE™)

Allegro's suite of Embedded Device Security toolkits make embedding standards-based security protocols into resource sensitive embedded systems and consumer electronics fast, easy and reliable. The Allegro Cryptography Engine (ACE) is a cryptographic library module specifically engineered to meet the critical needs of embedded computing systems in addition to fulfilling the requirements needed for FIPS 140-2 validation. The module provides embedded systems developers with a common software interface to enable bulk encryption and decryption, message digests, digital signature creation and validation, and key generation and exchange. The Suite B algorithms are an advanced standard for cryptography specified by the NSA for encryption, hashing, calculating digital signatures, and key exchange. ACE includes a platform independent, government validated implementation of the Suite B suite of cryptographic algorithms, as well as other FIPS 140-2 algorithms.

## Embedded X.509

### RomCert™

RomCert is a platform independent implementation of the Online Certificate Status Protocol (OCSP) and the Simple Certificate Enrollment Protocol (SCEP) and makes embedding security certificate management into resource sensitive embedded systems and consumer electronics fast, easy, and reliable, while improving time to market.

## Embedded TLS

### RomSTL™

RomSTL is a small, resource sensitive TLS client and server solution specifically engineered for embedded systems. RomSTL is pre-integrated with the full suite of Allegro AE products making it easy to invoke TLS as needed. RomSTL supports the latest RFC standards for TLS 1.0, TLS 1.1, and TLS 1.2 secure server and client sessions. The toolkit is hardware and software platform agnostic, and written from the ground up for efficiency. The encryption protocols interoperate with any secure browser or server and include RSA, RC4, DES, 3DES, SHA, AES, and optional Suite B algorithms. RomSTL also includes support for the DTLS protocol.

## Embedded SSH

### RomShell AE™

RomShell AE is an embedded Secure Shell version 2 (SSH) toolkit. SSH provides encrypted communications between hosts over an insecure network. RomShell AE offers a range of client authentication options in addition to X.509 public-key certificates. RomShell AE can also be used for port forwarding (sometimes called SSH tunneling), allowing you to arbitrarily tunnel secure TCP connections. RomShell AE also supports the latest RFCs for implementing Suite B with Secure Shell.

## Command Line Interface

### RomCLI AE™

The RomCLI AE toolkit is used to build Command Line Interfaces (CLI) similar to Cisco IOS-based products. The RomCLI AE toolkit includes the CliBuilder offline compiler for preparing command definitions along with RomTelnet, a Telnet server, and RomConsole supporting serial communications. A unique variable access structure allows your embedded development team to use the same access functions for RomPager AE, RomCLI AE and SNMP. Because security is always a concern when connecting embedded devices to a network, RomCLI AE is often used in conjunction with RomShell AE to provide a Secure Shell interface for device management.

## Allegro Software

Since 1996, Allegro has been providing superior products to the embedded industry. Many companies have discovered the advantages of creating devices that are active members of the Internet of Things (IoT) and work with Allegro to meet their networking connectivity needs. Allegro customers include many of the leading developers of computer systems, networking equipment and IoT devices such as Arris, Baxter Healthcare, Bose, Brocade Networks, Cisco, D-Link, General Dynamics, Harman International, HP, IBM, Kronos, Microsoft, Motorola, Nielsen, OpenTV, ResMed, Siemens, Sumitomo, Xerox and Yamaha. These customers, and others, have found that the Allegro AE Product Family is well suited for embedding in devices like printers, routers, automobiles, medical equipment, UPS systems, enterprise phone systems, set-top boxes and networked digital media products. With over 300 design wins and over 200 million deployed devices worldwide, Allegro delivers robust and field proven Internet software for your embedded device. Visit our website to learn more:

[www.allegrosoft.com](http://www.allegrosoft.com)

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