

# Stratus® SINAP® Family

Develop and run voice and data services — for legacy circuit or next gen packet.

Stratus' carrier-grade signaling software, Stratus® Integrated Network Applications Platform (SINAP®), supports the SS7 and IP protocols you need to develop, run, manage, and scale voice and data services in circuit and packet networks.

SINAP software enables rapid application development through its effective combination of software development tools and open application programming interfaces (APIs) at all protocol layers. These services can run transparently over both SS7 and IP networks. Standards-compliant SINAP products run on Stratus' Continuum® servers with the HP-UX® operating system and on the ftServer® T Series systems with fault-tolerant Linux® operating system. Whether you are a network operator, service provider, or solution developer, you benefit from a trusted, open, and robust SS7/C7/SIP platform.

This widely deployed development and runtime environment gives you the tools to accelerate time to market and to develop services that are network as well as protocol independent. You are able to achieve seamless migration of applications from traditional SS7-over-MTP networks to emerging SS7-over-IP networks that use the SIGTRAN M3UA and SCTP protocols or to SIP-over-IP next gen networks. And you'll help maximize investment in existing circuit infrastructure even as you develop and deploy converged and next-generation packet services.

The SINAP portfolio encompasses many technological advances, emerging protocol standards, and solution-enabling features. When you build your solution or service on SINAP software, you have the confidence of using a platform that has consistently demonstrated value in operator networks for more than 10 years.



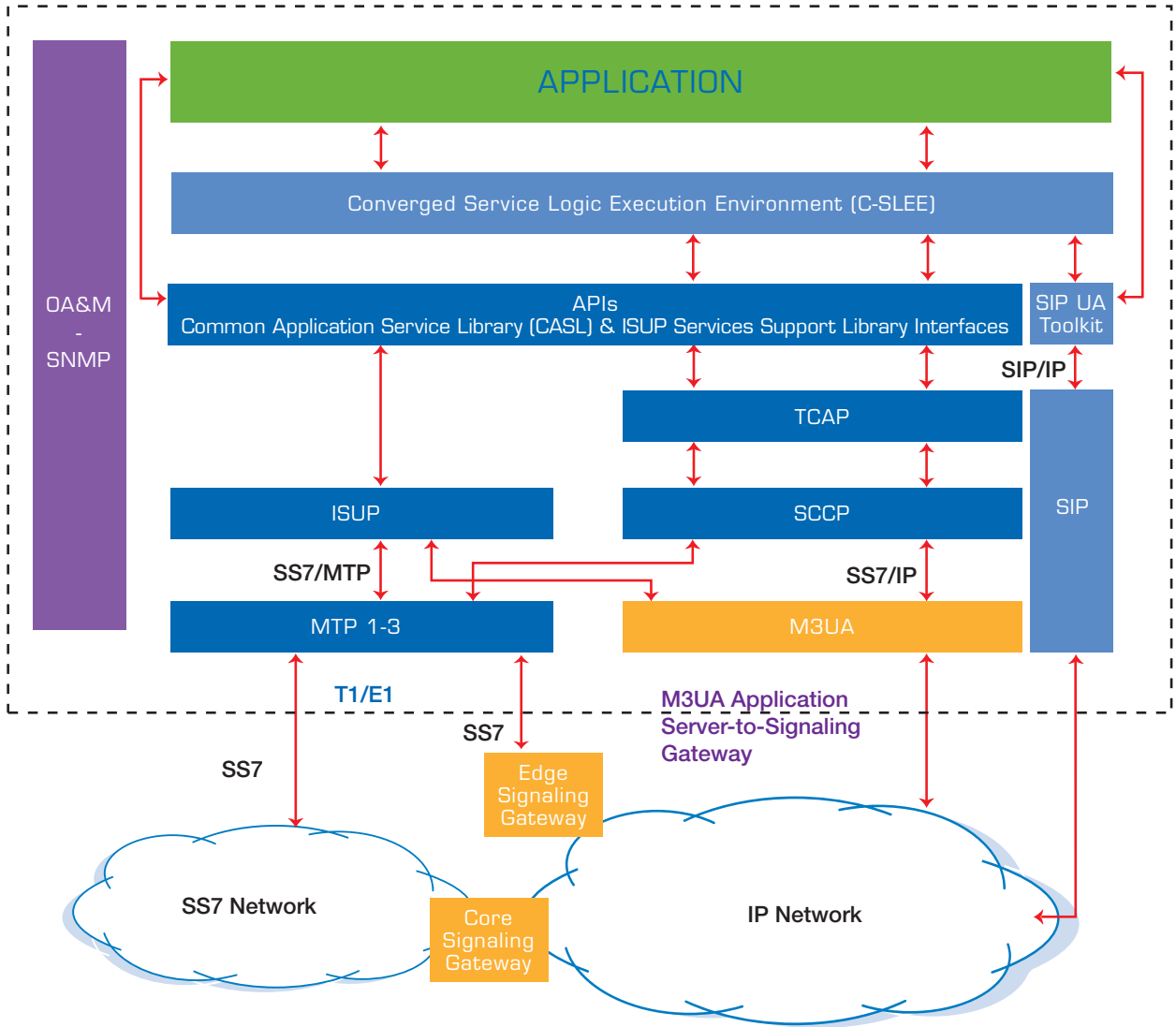
## The SINAP portfolio brings it all together:

- Enables software-based IN, IP, converged, wireline, and wireless services
- Open, standard SS7/C7 platform deployed globally
- VoIP service enablement through easy-to-use APIs that leverage and enhance SIP functionality
- Faster time to market through C-based SLEE
- Continuous availability of revenue-generating services
- Maximum price/performance — transactions/second, response time
- Ultra-scalable to support growth of services, subscribers via SS7-over-IP
- Dynamically configurable combinations of protocols, stacks, applications
- Easy to manage, install, configure, maintain
- Worldwide, 24 x 7 customer support
- Extensible to support new, open standards and technologies

SS7 | IP  
c o n v e r g e d

# SINAP components in the network

The SINAP family:  
your proven  
SS7 development  
and runtime  
environment.



■ SINAP/SS7   
 ■ SINAP/IP   
 ■ SINAP/SIP   
 ■ SINAP/SNMP & Management   
 ■ Applications

Key

3G

M o b i l e

2.5G

The SINAP product family combines an SS7 stack with converged IP and SIP capabilities that allow you to develop, run, manage, and scale voice and data services applications.

# Open, complete platform for revenue-generating services

## SINAP/SS7

This high-performance protocol stack for SS7 and C7 solutions — offering greater performance, reliability, and scalability than other stacks running on the same hardware — is widely deployed today within large-scale GSM and IN solutions, in both ITU- and ANSI-compliant networks around the globe.

Flexible multistack capability enables internetwork gateways and convenient test configurations. Combinations range from four SS7/C7 nodes of the same protocol variant on one network, to four nodes of different protocol variants on four different networks. Hybrid stacks with one protocol variant over another are supported.

## SINAP/C-SLEE

*(Converged Service Logic Execution Environment)*

This high-performance, scalable service logic execution environment supports C language-based applications that use IN protocols, including AIN 0.1, CS-1, CS-2, CAMEL, and SIP.

## SINAP/IP

Supporting SIGTRAN M3UA standards, you are able to achieve seamless migration of applications from traditional SS7-over-MTP networks to emerging SS7-over-IP networks that use the SIGTRAN M3UA and SCTP protocols or to SIP-over-IP next gen networks. The SINAP/IP (also known as IPAS) network entity allows SINAP/SS7 applications to run on Stratus telecom servers on an IP network and to interoperate with other third-party SIGTRAN-compliant products. Internet Protocol Application Server (IPAS) implements an Application Server Process (ASP) and Internet Protocol Signaling Point (IPSP) conforming to RFC3332, 2960, 3309, and the M3UA Implementor guide.

## SINAP/SIP

SINAP/SIP software uses the SIP stack and SIP User Agent (UA) toolkit sources from Flextronics Software Systems (FSS™), formerly Hughes Software Systems (HSS™). SINAP/SIP includes adaptations of the FSS SIP stack and UA toolkit sources to the ftServer T Series platform and provides users with easy-to-use APIs. The SIP stack and UA toolkit are compliant with the latest RFC 3261 (SIP) and RFC 2327 (SDP), including many others as described in the FSS SIP User Agent and Stack Compliance Statement.

SINAP/SIP runs on Stratus T Series systems, supporting 32-bit user applications on the 32-bit Stratus fault-tolerant Linux operating system. The T Series system and fault-tolerant Linux operating system provide additional robustness and a fail-safe SIP environment.

The SINAP/SIP software product fully resides in user space and provides easy-to-use APIs. These APIs encapsulate most of the basic SIP call- and session-setup primitives. You can use these APIs to code your service or applications to run on top of the SINAP/SIP software. The SINAP/SIP stack and UA toolkit provide a set of dynamically linked libraries (DLLs). The source files and binary files of the SIP stack and of UA toolkit sample test programs are provided in the SINAP/SIP package as examples for your reference.

## SINAP/SNMP

SINAP/SNMP software provides simple network management protocol (SNMP) subagent support for SINAP. It supports v1, v2c, and v3 SNMP standards for retrieval of SINAP configurations and Stratus values using GETS, as defined in the Management Information Base (MIB). SNMP traps based on SINAP alarm events are generated and relayed to a network management host.

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*Network operators and solution developers use SINAP software to build and run market-leading services — as they've done for 10+ years.*

T D M G S C D M A

# SINAP product specifications

## Hardware platforms

Stratus Continuum® systems	Models 418, 428, 419, 429, 439, 449: DC and AC options
Stratus ftServer® T Series systems	Model T30: DC and AC options

## UNIX® operating systems

HP-UX® operating system	32-bit HP-UX 11.00.01, 64-bit HP-UX 11.00.03
ftServer T Series system	Stratus fault-tolerant Linux® 2.2

## System I/O adapter support

TCAP and ISUP	U420 supports 1 T1/E1 port and 8 SS7 links (32-bit HP-UX only), U403 and U405 support 4 V.35 ports/SS7 links (32-bit HP-UX only)
TCAP	U916/U918 supports 4 T1/E1 ports, 32 TCAP low-speed SS7 links
ISUP	U916/U918 supports 4 T1/E1 ports, 16 ISUP low-speed SS7 links
Stratus Continuum systems (32-bit HP-UP)	Up to 8 V403, V405, or V420: maximum 128 SS7 links per system
Stratus Continuum systems (64-bit HP-UP)	Up to 8 U916s: maximum 128 SS7 links per system
Stratus T Series systems	Up to 4 U918s: maximum 128 SS7 links per system
Sun servers	Up to 3 U916s: maximum 96 SS7 links per system

## SINAP/SS7 features

Multistack	Supports 1 to 4 nodes (point codes)
Application memory requirement	Supports 32-bit and 64-bit mode applications
Node Management Subsystem	Includes: (a) operational support for managing client applications, SS7 stack, and SS7 network and (b) application infrastructure support for inter-process messaging, timers, event handling, and software reliability
Built-in Test Environment (BITE)	Monitors applications, processes, nodes, links, IPC; includes built-in log analysis program
Simple Network Management Protocol (SNMP)	MIB and subagent (SNMP v1, v2c, v3)

## SINAP/IP features

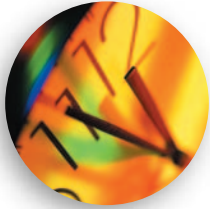
IPAS in ASP mode	Enables IPAS (ASP) to third party Signaling Gateway (SG) connectivity
IPAS in IPSP mode	Enables IPAS (IPSP) to IPAS (IPSP) or third party (IPSP) connectivity

## SINAP/SS7 protocol conformance

ITU-88 based MTP1, MTP2, and MTP3; ITU-93 options	Q.701, Q.702, Q.703, Q.704, Q.707
ITU-88 based and ITU-91 ISUP; ITU-93 options	Q.761, Q.762, Q.763, Q.764, Q.767
ITU-97 and ITU-93 based ISUP variants	UK (97), Belgium, China, Telstra (Australia), NTT, Spain, Mexico, Germany, Taiwan, Sweden, France Telecom
ITU-91 Q.767 based ISUP variants	Netherlands, Italy, Brazil
ITU-88 based TCAP with ITU-93 options	Q.771, Q.772, Q.773, Q.774
ITU-88 based SCCP with ITU-93 options	Q.711, Q.712, Q.713, Q.714
ANSI-90/92/01** based MTP1, MTP2, MTP3 with partial support for '96 and '88 legacy support;	ANSI T1.111
ANSI-90 based SCCP with support for '92 GTT. Additional partial support for '96*	ANSI T1.112
ANSI-88/90/92 based ISUP	ANSI T1.113
ANSI-90/92 based TCAP	ANSI T1.114
China SS7 - August 1990	GF001-9001
NTT - ISUP	NTT - Q.762-a, Q.763-a, Q.764-a, Edition 1-1
NTT - MTP	NTT - Q.700, Q.701-b, Q.702-a, Q.703-a, Q.704-b, Q.707-b
TTC - 94	JT - Q.700-704, Q.707, Q.711-714, Q.771-714. GTT to '94 Q.713 and Q.714
SINAP/C-SLEE protocol conformance	ETSI INAP, CS1, CS2**, CAMEL**, AIN 0.1**
SINAP/SS7-TCAP performance (simple application)	Up to 10,000 TCAP TPS @ 80% CPU utilization
TCAP response times	Average < 50 ms, 95% < 100 ms, 99% < 250 ms

\* Support planned for future release

\*\* Partial support



**Continuous  
Availability**



**Operational  
Simplicity**



**Financial  
Advantage**

# SINAP product specifications

## SINAP/IP protocol conformance

SCTP	RFC 2960, RFC 3309, RFC 3257, draft-ietf-tsvwg-sctpsocket-07, draft-ietf-tsvwg-sctppimguide-08, draft-ietf-tsvwg-addip-sctp-07
M3UA	RFC 3332, draft-ietf-sigtran-m3ua-implemtors-guide-04.txt

## SINAP/SIP protocol conformance

SIP (Core Stack and User Agent Toolkit)	RFC 3261, 3262, 2976, 3311, 3428, 3312, 3515, 3265, 3204
SDP	RFC 2327, 3264, 3388
	Compliant to a variety of extension drafts (Compliance document available upon request)

## SINAP/SS7 configuration support

Links per SINAP platform	128 Low Speed Links (LSL)
Link operating speeds	CCITT/ANSI/China/Korea: 4.8, 9.6, 19.2, 38.4, 56, 64 Kbits/s NTT: 4.8, 48, 64 Kbits/s
Max. number links/link sets	16
Max. number of routes per route set	ITU/NTT/China/Korea: 8; ANSI: 4
Max. number route sets/node	2,048 (4 nodes: max. of 8,192 route sets)
Max. number applications registered with a SINAP node	32 (4 nodes: max. of 128 applications)
Max. processes registered with a SINAP node running concurrently	255
Max. instances per application	16
Max. links per combined link set (CLS)	32 ANSI

## SINAP/IP configuration support

Max. number SGP per IPAS	16
Max. number SSNs for all IPASs	254
Max. number IP Addresses per SCTP endpoint	2, a primary and a secondary for multi-homing
Max. number SCTP associations to a single endpoint	1, may be multi-homed
Max. number SCTP associations per stack	200 on each of four stacks (each stack 1-2 IP interfaces)
Max. number remote OPC per IPAS	128

## SINAP/SIP features

SIP stack	Provides support of SIP stack
SIP User Agent Toolkit	Provides higher level API for building SIP UA clients and servers

## SINAP/SIP configuration support

IP transport	TCP, UDP, TLS
Threading mode	Single/multi-threaded

Specifications and descriptions are summary in nature and subject to change without notice.

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