

# LAYERSCAPE® LS1024A COMMUNICATIONS PROCESSOR APPLICATION SOLUTION KIT

Based on OpenWRT Linux® distribution for embedded systems

## PRODUCT OVERVIEW

NXP offers a comprehensive Linux-based OpenWRT application solution kit (ASK) to OEM/ODMs inclined to build multi-segment network products based on the Layerscape LS1024A communications processors. The field-hardened and feature-rich OpenWRT software package will enable OEMs/ODMs to significantly shorten their software design cycles and achieve quicker time-to-market without compromising on quality or features.

Optimized third-party software solutions, such as OSGi, Java, Android™ and IMS/VoLTE, complement the OpenWRT software package and offer a software ecosystem that is highly modular and scalable. OEMs/ODMs can reap the benefits of such modular software and eliminate hardware redundancy by offering more services, thereby reducing system costs. The OpenWRT software, coupled with our LS1024A communications processors, offers a high-performance, energy-efficient and scalable platform that will help OEMs/ODMs meet the demanding needs of next-generation consumer or enterprise networks reliably and efficiently.

## LS1024A OPENWRT LINUX BSP AND APPLICATION SOLUTION KIT OVERVIEW

The package includes access to the source code of all the board support packages and OpenWRT ASK and binaries of the VoIP module and packet forwarding engine. A list of supported third-party software ecosystem categories is shown below.

### LINUX OpenWRT

- U-Boot
- BSPs
- Linux kernel
- Linux file system



- Application drivers
- Binary for packet forwarding engine
- Binary for VoIP packet processing

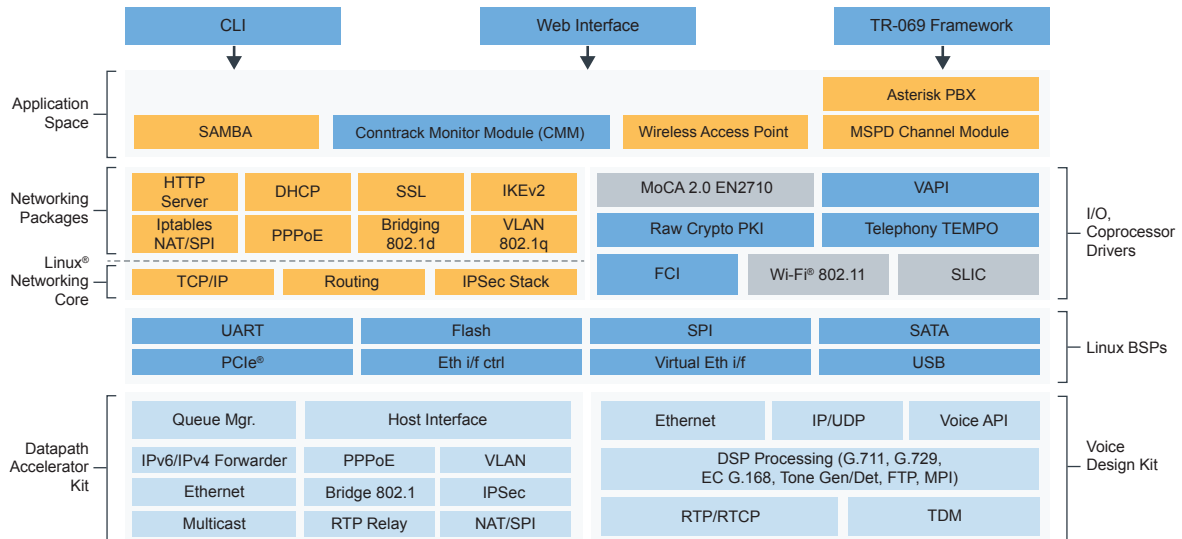
### NETWORKING SERVICES

- TCP/UDP

### IPV4

- RFC 2684 routed, bridged
- PPP/PPPoE
- ICMP
- NAT/NAPT
- IGMP and MLDv6
- DHCP/DHCPv6
- 802.1d bridging
- IP forwarding
- 802.1p, 802.q
- (s)RTCP
- (s)RTP

# LAYERSCAPE LS1024A PROCESSOR APPLICATION SOLUTION KIT BLOCK DIAGRAM



■ NXP ■ NXP Software Binaries ■ Third-Party Components ■ Open-Source SW

## IPv6

- Base protocol
- Neighbor discovery
- Auto-configuration
- ICMPv6
- Multicast addressing
- MLDv2
- DHCPv6
- IPv6/IPv4 dual stack
- IPv4 over IPv6 tunneling
- MLDv2 snooping driver support
- Multi-tier wireless LAN vendor driver support for 11n and 11ac
- Zarlink SLIC/SLAC drivers
- SiLabs SLIC/SLAC drivers
- USB stack
- PCIe stack
- I<sup>2</sup>C driver
- SPI driver
- Gigabit Ethernet MAC drivers
- Virtual drivers for MSP config
- IPsec engine control
- UART access
- GPIO control
- Interrupt service routine

## FEATURES AND BENEFITS

FEATURES	BENEFITS
Programmable packet forwarding engine	Delivers 2 Gbit/s performance and provides flexibility to offload current and future bandwidth demanding applications. Offloads NAS TSO and LRO operations to hardware. Reduces CPU load.
Hardened OpenWRT distribution	More than six years of rigorous field tests and millions of deployments. Hardened and mature software distribution reduces time-to-market.
Flexible and highly optimized software architecture	Easy to port and integrate third-party software stacks. Significantly reduces software design cycle. Ensures ample headroom for run-time services even during peak performance.
BSPs for hardware reference EVM	Suitable for software development and ASK performance benchmarking.
VoIP module	Carrier-class voice with a globally deployed echo canceller for residential VoIP, DECT and SMB gateway solutions.
NXP rich partner ecosystem	NXP offers a diverse third-party ecosystem delivering ready-to-use integrated solutions such as OSGi, JVM, IMS/VoLTE, Android, etc.
Support for emerging technologies	802.11ac, DPI, NAS, LTE, DECT-ULE

## SECURITY

- Deep packet inspection (DPI) enabled via third-party software
- SPI firewall
- IKE IPsec
- OpenSSL
- L2TP

## CLIENT/SERVER

- FTP
- Telnet
- SSH
- SAMBA
- NFS
- NTP

## QOS

- Classful and Classless Queuing
- Traffic shaping
- Rate limiting
- Ingress control
- DiffServ

## FAST PATH SUPPORT

- TCP/UDP
- IPv4/IPv6
- PPPoE
- NAT/NAPT
- IPsec/SSL
- DPI/SPI
- EtherIP
- 4RD/4 over 6
- Egress QoS
- Traffic shaping and rate limiting
- IPv4/IPv6 multicast
- RTP relay/cut through

## ACCESSIBILITY

- Web GUI
- CLI
- Telnet
- SSH
- TR-069 callback framework

## DIAGNOSTICS

- Tcpdump
- Cyclesoak
- RTP/RTCP stats

## VOIP

- Asterisk-Telephony
- RTP protocol
- SRTP protocol
- RTP call relay
- RTP cut through
- VAD / SID / CNG
- Call waiting, hold
- Call parking
- Echo suppression
- Digital gain control

- Announcement server
- AGC (automatic gain control)
- Voice loopback
- Conferencing support
- Fax/modem passthrough
- T.38
- Echo cancellation
- Sparse EC
- Quad tone generator
- Jitter compensation
- VAPI
- Tone relay
- VBD automode

## CODEC SUPPORT

- Narrow band codecs
- G.711
- G.729 a/b
- G726, iLBC
- G723, G729.1
- AMR
- Wideband codecs
- G.722
- G.722.2 AMR-WB

## THIRD-PARTY SOLUTIONS

- IMS/VoLTE
- Home automation suite
- JVM
- OSGi
- DPI
- IDS/IPS
- Antivirus
- App-based QoS
- Parental control
- DLNA

## PART NUMBER INCLUDES

- Access to BHR software stack
- Access to NAS software stack
- Access to binaries for PPFE and VoIP module software
- NXP point of contact application engineer to resolve customer issues

## ORDERING PART NUMBERS

- LS1024A-SWSP-PRM \$50,000
- LS1024A-SWSP-PLS \$25,000

The ordering part numbers are a yearly subscription that includes distribution rights. To maintain distribution rights you must have an active and paid subscription (see Ordering Part Number).

## LAYERSCAPE LS1024A SUBSCRIPTION PLAN OPTIONS

SUPPORT LEVEL	PREMIUM	PLUS
Part numbers — LS1024A	LS1024A-SWSP-PRM	LS1024A-SWSP-PLS
New software releases*	•	•
Assigned a Voucher ID for software support issues	•	•
Access to test codes to facilitate early feature integration	•	•
Ability to request custom features	•	
Software support hours included	250	100
Annual Subscription	\$57,500	\$28,750

\* New software releases — regular updates to the QorIQ LS1024A software are made available via NXP production and patch releases.

## [nxp.com/LS1024A\\_MA](http://nxp.com/LS1024A_MA)

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