



QorIQ LS1 Processor Family

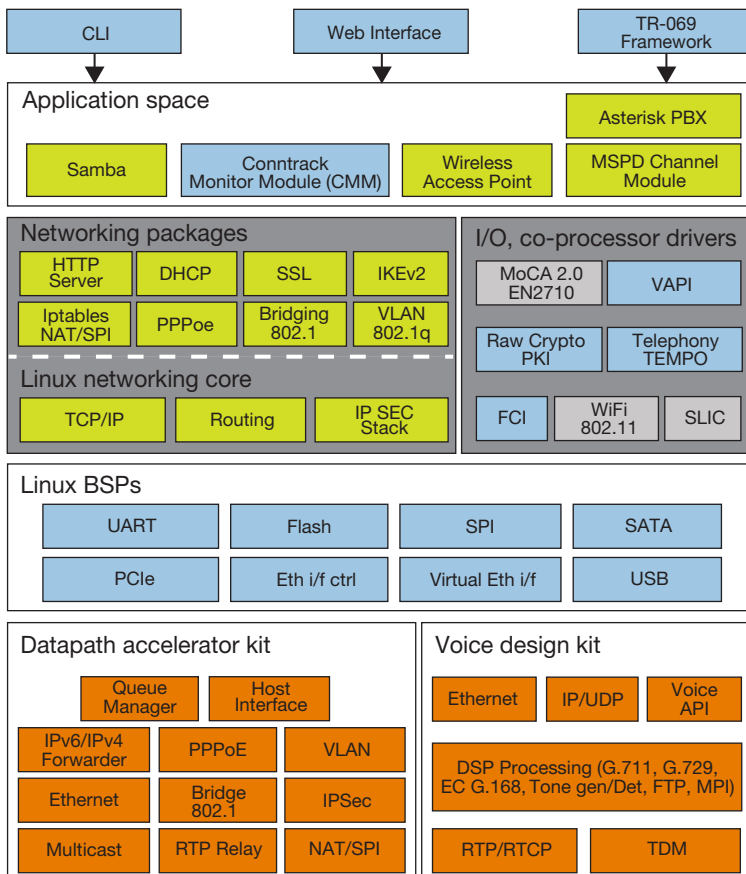
# QorIQ LS1024A Communications Processor Application Solution Kit

Based upon OpenWRT Linux® distribution for embedded systems

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



## QorIQ LS1024A Processor Application Solution Kit Block Diagram



■ Open source software   
 ■ Freescale software binaries  
■ Freescale software source code   
 ■ Third-party software

Optimized third-party software solutions, such as OSGi, Java, Android and IMS/VoLTE, compliment the OpenWRT software package and offer a software ecosystem that is highly modular and scalable. OEM/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 QorIQ LS1024A communications processors, offers a high-performance, energy-efficient and scalable platform that will help OEM/ODMs meet the demanding needs of next-generation consumer or enterprise networks reliably and efficiently.

Features	Benefits
<ul style="list-style-type: none"> <li>• Programmable packet forwarding engine</li> </ul>	Delivers 2 Gbps performance and provides flexibility to offload current and future bandwidth demanding applications. Offloads NAS TSO & LRO operations to hardware. Reduces CPU load.
<ul style="list-style-type: none"> <li>• Hardened OpenWRT distribution</li> </ul>	More than four years of rigorous field tests and millions of deployments. Hardened and mature software distribution reduces time to market.
<ul style="list-style-type: none"> <li>• Flexible and optimized software architecture</li> </ul>	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.
<ul style="list-style-type: none"> <li>• BSPs for hardware reference EVM</li> </ul>	Suitable for software development and ASK performance benchmarking.
<ul style="list-style-type: none"> <li>• VoIP module</li> </ul>	Carrier class voice with a globally deployed echo canceller for residential VoIP, DECT and SMB gateway solutions.
<ul style="list-style-type: none"> <li>• Freescale rich partner ecosystem</li> </ul>	Freescale offers a diverse third-party ecosystem delivering ready-to-use integrated solutions such as OSGi, JVM, IMS/VoLTE, Android, etc.
<ul style="list-style-type: none"> <li>• Support for emerging technologies</li> </ul>	802.11ac, DPI, NAS, LTE, DECT-ULE

## QorIQ 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 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 (3.2.54)
- 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

## QorIQ LS1024A Support Plan Options

Support Level	Premium	Plus	Basic
Part numbers—LS1024A	LS1024A-SWSP-PRM	LS1024A-SWSP-PLS	LS1024A-SWSP-BAS
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	240	100	50
Additional Software support hourly rate	\$175	\$200	\$225
Issue tracking database	Access limited to 10 users	Access limited to 3 users	Access limited to 1 user
Annual Fee	\$50,000	\$25,000	\$15,000

\* New Software Releases—Regular updates to the QorIQ LS1024A software are made available via Freescale production and patch releases.

### IPv6

- Base protocol
- Neighbor discovery
- Auto-configuration
- ICMPv6
- Multicast addressing
- MLDv2
- DHCP v6
- IPv6/IPv4 dual stack
- IPv4 over IPv6 tunneling
- MLDv2 SnoopingDriver support
- Multi-tier 1 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
- Gig Ethernet MAC drivers
- Virtual drivers for MSP config
- IPsec engine control
- UART access
- GPIO control
- Interrupt service routine

## 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 & Classless Queuing
- Traffic shaping
- Rate limiting
- Ingress control
- Diff serv

## Fast Path Support

- TCP/UDP
- IPv4/IPv6
- PPPoE
- NAT/NAPT
- IPsec/SSL
- DPI/SPI
- EtherIP
- 4RD/4 over 6
- Egress QoS
- Traffic shaping and ratelimiting
- IPv4/IPv6 Multicast
- RTP relay/cut thru

## Accessibility

- WEB GUI
- CLI
- Telnet
- SSH
- TR-069 call back frame work

## Diagnostics

- TCPDump
- Cyclesoak
- RTP/RTCP stats
- Voice channel 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
- Wide band CODECs
  - G.722
  - G.722.2 WB AMR

## Third-party Solutions

- IMS/VoLTE
- Home automation suite
- JVM
- OSGi
- Android Jelly Bean
- DPI
- IDS/IPS
- Anti-virus
- App based QoS
- Parental control
- DLNA

## Ordering Part Number:

- LS1024A-SW-ASK (\$5,000 USD)

## Part number includes:

- Access to BHR software stack
- Access to NAS software stack
- Access to Binaries for PPFE and VoIP module software
- Freescale point of contact Application engineer to resolve customer issues

For more information visit [freescale.com/LS1024A\\_MA](http://freescale.com/LS1024A_MA)

For a complete list of Freescale partners, please visit [freescale.com/partners](http://freescale.com/partners)



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Document Number: LS1024AASKFS REV 1