



Based on
OpenWRT Linux®
distribution for
embedded systems

Layerscape® LS1012A Processor Broadband Home Router Application Solution Kit

The comprehensive NXP® LS1012A broadband home router (BHR) application solution kit (ASK) helps OEMs and ODMs achieve shorter design cycles without compromising the quality of networking products.

TARGET APPLICATIONS

- ▶ Broadband home router
- ▶ Mobile broadband router
- ▶ MiFi® wireless router
- ▶ Consumer wireless access point
- ▶ Enterprise access point
- ▶ Security gateway

OVERVIEW

The LS1012A BHR ASK reliably and efficiently meets the needs of next-generation consumer and enterprise networks through the powerful combination of its LS1012A processor and feature-rich Linux OpenWRT software package. Together, these components offer a highly optimized network stack and scalable platform. This turnkey software optimally leverages the packet accelerators and delivers wire-speed performance with less than 5 percent load on the Arm® core. OEMs and ODMs can reduce system costs and benefit from the free CPU by including more value-added services without introducing redundant hardware.



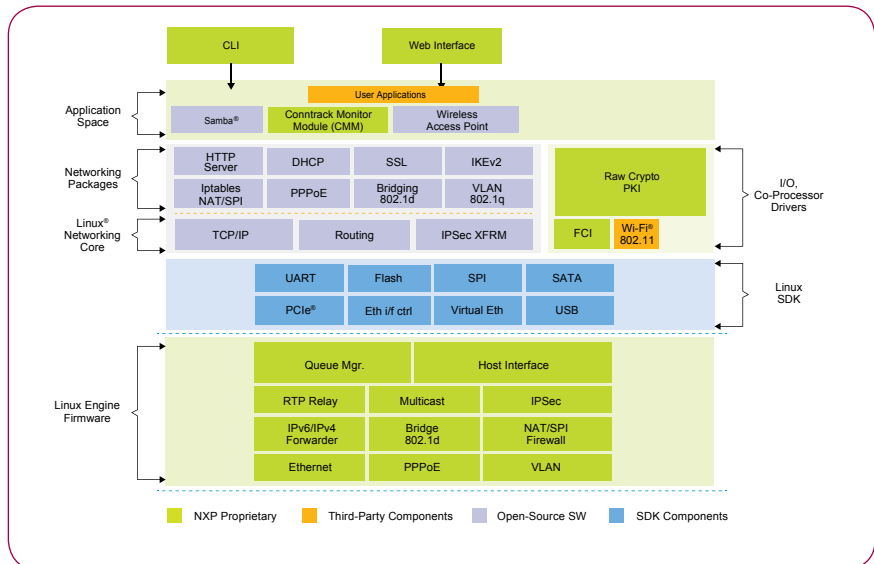
SECURE CONNECTIONS
FOR A SMARTER WORLD

LS1012A OpenWRT Linux BSP and ASK OVERVIEW

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

Linux OpenWRT

- ▶ U-Boot
- ▶ BSPs
- ▶ Linux kernel (4.1.35)
- ▶ Linux file system
- ▶ Application drivers
- ▶ Binaries for packet forwarding engine



Networking Services

- ▶ TCP/UDP
- ▶ IPv4
- ▶ RFC 2684 routed, bridged
- ▶ PPP/PPPoE
- ▶ ICMP
- ▶ NAT/NAPT
- ▶ IGMP and MLDv6
- ▶ 802.1d bridging
- ▶ IP forwarding
- ▶ 802.1p, 802.q
- ▶ (s)RTCP
- ▶ (s)RTP

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 1n and 11ac

Features	Benefits
Programmable packet forwarding engine	<ul style="list-style-type: none"> • Delivers 2 Gbit/s performance and provides flexibility to offload current and future bandwidth-demanding applications • Offloads NAS TSO & LRO operations to hardware and reduces CPU load
Hardened OpenWRT distribution	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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
Hardware security	Support for Secure Boot and trusted environment with high-performance SEC engine and gigabit encryption
BSPs for hardware reference EVM	Suitable for software development and ASK performance benchmarking

- ▶ USB stack
- ▶ PCIe® stack
- ▶ I²C driver
- ▶ SPI driver
- ▶ Gigabit Ethernet MAC drivers
- ▶ IPsec engine control
- ▶ UART access
- ▶ GPIO control
- ▶ Interrupt service routine

Security

- ▶ SPI firewall
- ▶ IKE IPsec
- ▶ OpenSSL

- ▶ L2TP, PPTP, ETHERIP

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 thru

Accessibility

- ▶ WebGUI content management system
- ▶ CLI
- ▶ Telnet
- ▶ SSH

Diagnostics

- ▶ TCPDump
- ▶ Cyclesoak
- ▶ RTP/RTCP stats

Ordering Part Number:

- ▶ LS1012A-SW-ASK (\$10,000 USD)

Purchase Includes:

- ▶ Access to BHR software stack
- ▶ Access to binaries for PPFE
- ▶ NXP point-of-contact application engineer to resolve customer issues

LS1012A SUPPORT PLAN OPTIONS

Support Level	Premium	Plus
Part numbers — LS1012A	LS1012A-SWSP-PRM	LS1012A-SWSP-PLS
New ASK 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 fee	\$50,000	\$25,000

*New software releases — regular updates to the LS1012A software are made available via NXP production and patch releases.

www.nxp.com/LS1012a_ASKBHR and www.nxp.com/partners

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