LS1043A/LS1046A MULTICORE COMMUNICATIONS PROCESSOR BROADBAND HOME ROUTER APPLICATION SOLUTIONS KIT

The many features of the Layerscape LS1043A/LS1046A multicore communications processor broadband home router application solutions kit (ASK) simplify product design for customers.

TARGET APPLICATIONS

- SMB router
- Home gateway
- Next generation broadband router
- Integrated services router
- Consumer wireless access point
- Enterprise access point
- Security gateway

OVERVIEW

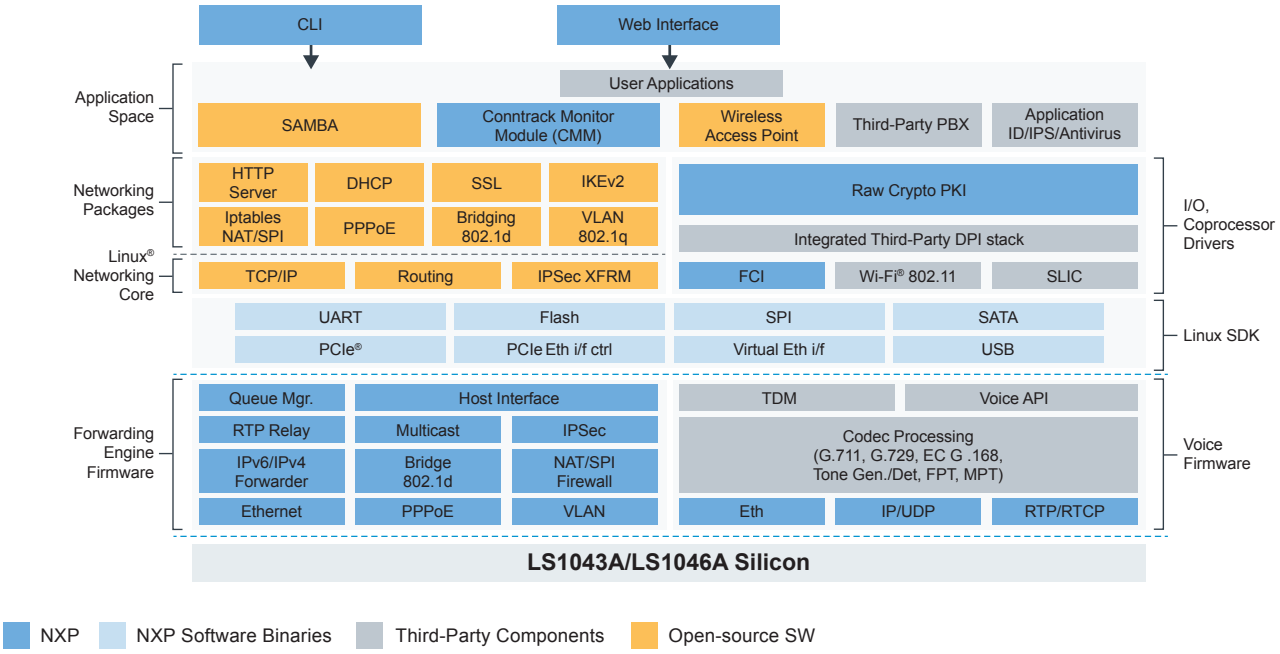
NXP® offers a vertically integrated and comprehensive Linux®-based OpenWRT broadband home router (BHR) ASK to OEMs and ODMs inclined to build multi-segment network products based on the LS1043A and the LS1046A communications processors. The field-hardened and feature-rich OpenWRT software package will enable OEMs and ODMs to significantly shorten their software design cycle and achieve quicker time-to-market without compromising on quality or features.

The turnkey software stack optimally leverages the packet accelerators within the LS1043A and delivers wire speed performance with less than 1% load on the Arm® core. Customers can benefit from the free CPU by adding more value-added services without the need of introducing redundant hardware, thereby reducing system costs.

The BHR software, coupled with our LS1043A or LS1046A communications processors, offers a highly optimized, feature-rich network stack and scalable platform that will help customers meet the demanding needs of next-generation consumer or enterprise networks reliably and efficiently.

In addition to providing comprehensive software solutions, NXP offers commercial software support providing our customers with access to NXP's support infrastructure and to new software releases as they become available. These new software releases include many key product updates and feature additions.

LAYERSCAPE LS1043A/LS 3A/LS1046A BROADBAND HOME ROUTER APPLICATION SOLUTION KIT BLOCK DIAGRAM



SUPPORTED DEVICES

- LS1043A and LS1023A communications processors
- LS1046A and LS1026A communications processors

LS1043A/LS1046A OPENWRT LINUX BSP AND ASK OVERVIEW

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

LINUX OPENWRT

- U-Boot
- BSPs
- Linux kernel version
- Linux file system
- Application drivers
- Binary for packet forwarding engine

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

IPV6

- Base protocol
- Neighbor discovery
- Auto-configuration
- ICMPv6
- Multicast addressing
- MLDv2

LS1043A AND QorIQ LS1046A FEATURES

FEATURES	BENEFITS
Programmable packet forwarding engine	Delivers 10 Gbit/s performance and provides flexibility to offload current and future bandwidth demanding applications; 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 and ensures ample headroom for runtime 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
Software compatibility	Scalable software architecture and common code base across design for varying customer needs
Unmatched support	Commercial support packages gives customer direct access to R&D; get to production quickly

- DHCPv6
- IPv6/IPv4 dual stack
- IPv4 over IPv6 tunneling
- MLDv2 snooping driver support
- Multi-tier wireless LAN vendor driver support for 11n and 11ac
- 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
- NPT 64/NAT-PT
- IPsec tunnel and transport
- EtherIP
- 4RD/4 over 6/6 over 4
- Egress QoS
- Traffic shaping and rate limiting
- IPv4/IPv6 multicast
- RTP relay/cut thru
- IPv4/v6 fragmentation and reassembly
- Jumbo frames
- VLAN/QinQ
- L2 bridging
- DSCP and P-Bits
- Policy-based routing
- Session-based stats

ACCESSIBILITY

- WEB GUI
- CLI
- Telnet
- SSH

DIAGNOSTICS

- TCPDump
- Cyclesoak
- RTP/RTCP stats

ORDERING PART NUMBER

- LS1043A-SWSP-PLS ($25,000)
- LS1043A-SWSP-PRM ($50,000)
- 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).

PART NUMBER INCLUDES

- Access to BHR software stack
- NXP point-of-contact application engineer to resolve customer issues

NOTE: The feature list is subject to change without prior notice at the sole discretion of NXP.

LAYERSCAPE LS1043A/LS1046A PLAN OPTIONS

SUPPORT LEVEL	PREMIUM	PLUS
Part numbers	LS1043A-SWSP-PRM	LS1043A-SWSP-PLS
	LS1046A-SWSP-PRM	LS1046A-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	$57,500	$28,750

*New Software releases—regular updates to the LS1043A/LS1046A software are made available via NXP production and patch releases.

www.nxp.com/LS1043A_ASKBHR and www.nxp.com/partners

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