Product Type   Integrated Communication Processor

Freescale Part #   LS1020A, LS1021A, LS1022A

Package   525-pin, 19x19mm, 0.8mm ball pitch FC PBGA

Crypto Hardware   SEC 5.5

Algorithms	Max Key Size (bits)
DES (ECB, CBC, OFB, CFB)	56
3DES (ECB, CBC, OFB, CFB)	168 (3-keys)
AES (ECB, CBC, CTR, CCM, CMAC, GCM, OFB, CFB, XCBC-MAC)	256
MD-5 + HMAC	(up to 512 bit keys)
SHA-1 + HMAC	(up to 512 bit keys)
SHA-224 + HMAC	(up to 512 bit keys)
SHA-256 + HMAC	(up to 512 bit keys)
SHA-384 + HMAC	(up to 512 bit keys)
SHA-512 + HMAC	(up to 512 bit keys)
RSA Digital Signature	4096-bit operands
RSA Digital Verify	4096-bit operands
ECC Digital Signature	1023-bit field or modulus size
ECC Digital Verify	1023-bit field or modulus size
FIPS compliant deterministic RNG	On chip 32-bit

Target Applications   :
Control processing for Routers, Storage Arrays, Industrial Single Board Computers

Export Control Info:
Harmonized Tariff (US): 8542.31.0000
ENC Status: Restricted. US EAR part 740.17(b)(2)
ECCN: 5A002A.1
CCAT: G158338

Overview:
The LS1020A, LS1021A, and LS1022A are members of the QorIQ Layerscape family of integrated communications processor from Freescale Semiconductor.

These devices incorporate (2) A7 ARM Architecture CPU cores, (1) DDR3L/4 Memory Controller, up to (3) 1G Ethernet ports, along with multiple PCIe, SATA, USB, and CAN peripheral bus controllers.

In addition to these CPUs and interfaces, the LS1020A, LS1021A, and LS1022A integrate a 2.5 Gbps Crypto Acceleration Engine (SEC 5.5). The algorithms and key lengths supported by the SEC 5.5 are listed in the table above.

In addition to crypto algorithm processing, the SEC 5.5 supports security protocol processing off-load capability, with specific support for protocol header and trailer processing for IPsec, SSL, DTLS, SRTP, MACSec, 802.16e, and 802.11e. The SEC 5.5 is expected to achieve 2500+ public key exchanges per second.

The LS1020A, LS1021A, and LS1022A also provide support for secure boot and platform assurance, including ARM TrustZone.

NOTE 1: This authorization does not authorize the export of products designed to use the encryption functionality of these chips. Such products may require a classification and/or license from the Bureau of Industry and Security (BIS) prior to export. OEMs incorporating these chips in their products should call the BIS Encryption Export Support Line at 202-482-0707 with specific questions.

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